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Impact of users' oral/literate stereotypes on electronic mail communication

E. Gail Garabedian
San Jose State University

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Garabedian, E. Gail, M.A.

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Ann Arbor, MI 48106

IMPACT OF USERS' ORAL/LITERATE STEREOTYPES
ON ELECTRONIC MAIL COMMUNICATION

A Thesis

Presented to

The Faculty of the Division of Technology

San Jose State University

In Partial Fulfillment

of the Requirements for the Degree

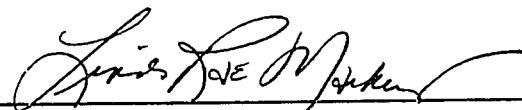
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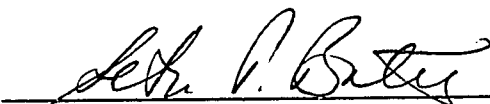
E. Gail Garabedian

May, 1991

APPROVED FOR THE DIVISION OF TECHNOLOGY



Dr. Linda Rae Markert



Dr. Seth P. Bates



Dr. Ralph C. Bohn

APPROVED FOR THE UNIVERSITY

ABSTRACT

IMPACT OF USERS' ORAL/LITERATE STEREOTYPES ON ELECTRONIC MAIL COMMUNICATION

by E. Gail Garabedian

This thesis discusses various problems that have surfaced in connection with the relatively new computer-mediated communication technology known as electronic mail (e-mail). It suggests that users' stereotypes with regard to speaking and writing, which are based on a lifetime of experience with these conventional communication media and are therefore unique to each individual, may subtly affect their behavior and expectations concerning electronic mail.

The research was conducted by means of a questionnaire administered via e-mail. The data suggest that an oral bias may exist in the area of feedback expectations, whereas ambiguity and planning may reflect a literate bias. The factors of formality and ephemerality displayed no marked tendency toward either end of the scale. The wide range of responses suggests considerable variation in e-mail users' perceptions of the medium; this lack of homogeneity may account in part for the problems discussed in the paper.

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Chapter 1

Problem Definition

Introduction

Electronic mail (e-mail) is a communication medium that has taken organizations by storm. While it may not produce the same level of social satisfaction that attends interaction of a more personal nature (Crawford, 1982; Szlichcinski, 1983), it is nonetheless an extraordinarily powerful tool. E-mail allows a single message to reach a large distribution; it enables people in different parts of the world to communicate despite time differences. It provides people with the option of an immediate written record of their communication; and it allows both senders and recipients time to think, senders to think about and refine their message and recipients to evaluate the message and formulate a considered response.

Much has been written on the subject of electronic mail. The development and application of this relatively new technology, and its effect on the productivity of individuals and organizations, have been studied and documented extensively (Caswell, 1988; Rice, 1986; Rice & Bair, 1984). The broad field of human communication has also been a fertile area for research, and a great deal of attention has been focused on developing strategies to enhance the effectiveness of both speaking and writing. However, the study of

effective communication via e-mail appears to have been somewhat neglected.

Statement of the Problem

Although the potential for increased productivity through the use of electronic mail is clear, the immediacy of the medium coupled with the remoteness of the participants leads to some unique problems (Shapiro & Anderson, 1985). Ambiguity, delayed response, and misinterpretation due to lack of nonverbal cues are some of the issues that can block effective e-mail communication. The present study seeks to determine whether the disparate causes for the host of identified e-mail communication problems may have a common basis in the oral/literate stereotypes held by e-mail users.

As McLuhan (cited in Galati, 1986) points out, the communication medium affects not only how a message is transmitted, but also (a) the manner in which it is written, and (b) the expectations of the recipient. Put another way, the "mode of communication influences the structure of the relations between interactants in a dyad" (Blass & Siegman, 1975, p. 20). Lack of nonverbal and other social context cues is generally taken to be the primary culprit in e-mail communication problems (Sproull & Kiesler, 1991). However, ingrained stereotypes regarding the nature of spoken and written communication, whether such stereotypes are consciously or unconsciously held, may also account for some of the communication problems encountered by electronic mail users. McMaster and Grinder (1980) point out that the effective transfer of verbal information is contingent on a shared model and set of experiences, and the same may be said of e-mail communication.

Electronic mail communication problems may be based, at least in part, on (a) the underlying (and traditional) assumption that speaking and writing

are dichotomous, and (b) the unconscious assignment of particular types of e-mail messages to a specific point on the oral/literate continuum, with concomitant (and sometimes unrealistic) expectations about how e-mail communication should work. Because of the hybrid nature of the medium, users may form certain expectations regarding e-mail message clarity, adherence to social conventions, and appropriate response time that are not necessarily shared by the person or people with whom they are interacting.

For example, some writers tend to use a somewhat "cut and dried" style rather than one that is overtly sociable and friendly sounding when communicating via e-mail. In his 1982 study of e-mail implementation at Digital Equipment Corporation (DEC), Crawford reports that some managers found messages to be too "sterile, formal, and terse" (p. 3). This businesslike approach may be appropriate for some messages, since it gets right to the point. However, users who tend to regard e-mail as a "conversational" medium may find this style to be brusque and unfriendly, and they may react to the message differently than if it were couched in a friendlier fashion. In particular, "conversations for possibilities" (freestyle discussions of opinions and alternatives) may be candidates for miscommunication via e-mail, because they are less likely to be received and processed as intended than "conversations for action" (primarily requests and commitments) (Mantelman, 1987).

Hjalmarsson, Oestreicher, and Waern (1989) suggest that e-mail systems "can be most closely likened to paper mail" (p. 464). The authors base this assertion on the terminology associated with electronic mail: "mailbox," "address," "recipient," and the like. However, as Galati (1986) points out, e-mail communication resembles a conversation, due to the rapid exchange

of information. In fact, electronic mail is a unique medium, despite the fact that it is similar in some respects to both speaking and writing. As Sproull and Kiesler (1991) note, appropriate behavioral norms--based on experience, instruction, and social context cues--exist for every familiar communication situation. To the extent that users hold expectations derived from stereotypes of oral and written communication, their recognition of the unique requirements of the electronic mail medium may be hampered. Applying to e-mail communication the same rules that govern more conventional media appears to invite misunderstanding of both message content and message intent.

Significance of the Study

Communication is the life blood of an organization, as it is of any social unit regardless of size. An increasing amount of the communication in organizations travels via electronic mail, and several problems attributed to the medium have been identified. The causes postulated for these problems have been disparate: Misinterpretation of intent has been attributed to the absence of nonverbal cues; delayed response has been blamed on information overload; and "flaming," the harsh and vitriolic style that seems to be the particular province of electronic mail communication, has been laid at the door of perceived anonymity.

Users' expectations regarding e-mail behavior may be based in part on the oral/literate stereotypes they hold. If evidence suggests that such expectations constitute a common basis for e-mail problems, a more unified and systematic program for improving the effectiveness of e-mail communication might emerge. In our "Information Age," any findings that result in communication improvements must be considered to have some value.

Limitations of the Research

The primary limitation of the present research derives from the lack of existing literature directly related to the main research question, i.e., whether users' oral/literate stereotypes are reflected in their perceptions concerning e-mail communication. Many authors have written on the various aspects of spoken and written communication, and many have also studied and commented on electronic mail and the special communication problems associated with the medium. A few have even pointed out the hybrid nature of electronic mail communication.

However, the present literature review did not uncover any references that explicitly linked e-mail communication problems with users' oral/literate stereotypes. It was therefore necessary to formulate the research questions based on information and opinions collected from related literature in the following fields: ergonomics, linguistics, psychology, education, transportation research, technology, management science, business, and communication.

A potential limitation on the generalizability of any findings from the present research derives from the fact that the entire sampled population works for Tandem Computers and shares that company's unique culture. The culture would not be expected to influence users' oral/literate stereotypes, because such stereotypes are the product of each individual's lifelong experience with speaking and writing. However, it is conceivable that expectations regarding appropriate electronic mail behavior might vary from one business environment to another.

A more theoretical limitation on the generalizability of the present research is raised by Rice and Williams (1984). They point out that present

users of "new" communication media are a socioeconomically elite group, consisting of motivated and computer-literate information searchers, and are not necessarily representative of future users.

Definition of Terms

Effective communication. For purposes of this study, communication is considered to be effective when (a) both parties to the communication share a common understanding of the message content and the underlying intent, and (b) when the communication promotes synergy and provides the opportunity to build the relationship further. Thus, communication is not considered to be effective if, for example, the reader misinterprets the tone of a message; if the writer "flames" the reader and introduces the impediment of hostility into the proceedings (see definition below); or if the writer fails to receive a response to his message in a time which he considers reasonable. This definition goes beyond simple word comprehension to include the broad range of feelings that can play a significant role in enhancing or hampering communication.

E-mail. In the present study, electronic mail (e-mail) is defined as a computer-mediated flexible format text-based messaging system that facilitates interactive communication by allowing messages of any length to be sent to one or more specifically named recipients. Users of the system can send and receive messages, can store and print them, can forward them to other individuals, and can reply to the sender or senders of the message. Messages may be sent to a single individual or to a group defined by a "distribution list." Electronic communication media such as one-line messaging systems, facsimile, telex, bulletin boards, and conferencing systems, although

frequently included under the "electronic mail" umbrella, are not so defined in this study.

Early telecommunication research (Short, Williams, & Christie, 1976) suggested that, in tasks such as information transmission, it mattered little "whether interactors treat the other as a person or as an impersonal information source" (p. 158). Conversely, in referring to most "high tech" definitions of electronic mail, Caswell (1988) notes that "although the heart of electronic mail may be non-interactive communications, its soul is people communicating with people" (p. 2). This more humanistic perception of computer-mediated communication is reflected in the theme of the present research.

Flaming. "Flaming" is a term originated by computer users, meaning "to speak rabidly or incessantly on an uninteresting topic or with a patently ridiculous attitude" (from The Hackers [sic] Dictionary, cited in Sproull & Kiesler, 1986, p. 1501). Flaming is defined by Kiesler, Zubrow, Moses, and Geller (1985) as "the emotional expression of opinion and feeling which occurs more frequently on the computer than in other communication settings" (p. 83).

Stereotype. A stereotype is "a conventional, formulaic, and usually oversimplified conception, opinion, or belief," as defined in the American Heritage Dictionary of the English Language. The stereotypes that figure in the present study relate to speaking (spontaneous, immediate feedback, ephemeral, personal) and writing (carefully planned, unambiguous, formal, permanent).

User. A "user" in this study is an individual who has ready access to, and makes regular use of, electronic mail as defined above.

Chapter 2

Review of the Literature

E-Mail Technology

There are many different types of electronic communication media, including bulletin boards, real time message systems, facsimile, conference systems, and mail systems. Of the available media types, e-mail is the most widely used (Kiesler, 1986), and the current trend is toward increased access to electronic mail systems (Sproull & Kiesler, 1986). Today there are more than two dozen e-mail packages on the market (Carr, 1990) and more than nine million e-mail users, and the medium is continuing to grow in popularity (Caldwell, 1990). Caswell (1988) reports growth of 50% per year in the use of private (intracompany) e-mail systems.

The common functionality of all electronic mail systems is to allow people to send and receive "letters" which reach one or more explicitly identified recipients (Hjalmarsson et al., 1989). Such systems have a wide application--Moore and Jovanis (1988) reported that e-mail was available in 56% of a sample of 94 Fortune 500 companies--and they are important for economic, legal, intellectual, and social development (Hjalmarsson et al., 1989). In general, the perceived appropriateness of the medium depends on the task context and the social or organizational role of the user (Rice & Williams, 1984); e-mail tends to be used primarily for socioemotional

(non-task related) activities or for task-related activities that are not highly personal, confidential, or sensitive (Schaefermeyer & Sewell, 1988). This new technology can be expected to have a dramatic social and cultural impact (Tips, 1987). While it is clearly an "information accelerator," it also has the potential to fundamentally alter the way information is distributed within an organization (Sproull & Kiesler, 1986).

Electronic mail has many advantages over conventional mail and other standard communication media. For example, it is asynchronous (i.e., the sender and receiver need not be available simultaneously). In addition to reducing the frequency of "telephone tag" episodes--only about 30 percent of calls reach the intended recipient on the first try, according to Shapiro and Anderson (1985)--this characteristic is of particular value to employees of multinational enterprises who must communicate across widely varying time zones. As Brand (1987) says, "e-mail evaporates the tyranny of place, and to a considerable degree, of time" (p. 24). A side benefit is the alleviation of certain language-related difficulties. For example, a telephone call might occasionally result in some embarrassment due to lack of fluency in English on the part of the recipient. In contrast, e-mail gives the recipient as much time as he or she needs to review the message and construct an appropriate response.

Another significant advantage of electronic mail is that, through the use of distribution lists, a message may be sent simultaneously to more than one person. This capability results in enormous time savings. Furthermore, e-mail is much faster than conventional postal service or interoffice mail delivery. Although it has the potential for significantly reducing hard-copy paperwork (Prototype, 1988), it nonetheless enables users to print selected

messages, thus creating an audit or "paper" trail for future reference. It also tends to increase vertical and horizontal communication within organizations, per research cited by Schaefermeyer and Sewell (1988). Finally, it enables users to make contact with people whom they might otherwise never have an opportunity to "meet," and (per Sproull & Kiesler, 1986), it is responsible for a significant amount of communication that would not take place if the medium were not available.

Additional benefits cited by Caswell (1988) include increased productivity of PCs and other office automation systems, improved span of control over subordinates, improved knowledge of peer activities, better group interaction and decision making; and better time management with fewer interruptions (p. 19). On a more personal note, Sproull and Kiesler (1991) discuss the equalizing effect of computer-based messaging; attributes such as age, sex, and appearance become secondary to competence and ability.

Future electronic mail systems will not only support their human users (e.g., the "Envoy" of Tektronix's prototype system, which automatically polls potential meeting attendees and schedules meetings without human intervention), but will doubtless draw on developments in artificial intelligence to give computers a greater role in developing and transmitting meaning (Mantelman, 1987). The use of graphics facilities to provide automatic feedback regarding message reception is suggested by Eklundh (1987), as is the possibility that advanced systems might be able to provide simple "approval" or "disapproval" feedback to the sender. Shapiro and Anderson (1985) envision a system in which the boldness and spacing of displayed characters would vary with the force and speed of the keystrokes, thus providing a clue to the emotional state of the sender. "Coordinator"

systems, which use speech-act theory to facilitate message generation and monitor the progress of the subsequent correspondence (Winograd, 1984), may also serve to minimize the potential for e-mail miscommunication in the future. Kiesler et al. (1985) point out that nonverbal aspects, such as visual or auditory features, could be added to computer-mediated communication systems to improve the efficiency of the medium. And the possibility exists that e-mail, as we know it today, may eventually be completely supplanted by sophisticated voice/image and speech-to-text systems.

E-Mail at Tandem Computers

Tandem Computers uses various forms of computer-mediated communication, but the most pervasive by far is the intracompany electronic mail system. There is no "typical" context for e-mail messaging at Tandem Computers; the medium is utilized for the entire communication spectrum, from announcements by the company president regarding export control policy to requests for vegetarian recipes.

The Tandem e-mail system accommodates the need for both formal and informal interpersonal networks (Mantelman, 1987) with three separate mail classes:

First class. Intended primarily for messages from one person to another person, or from one person to a small group of people. (Virtually all employees read their first class mail regularly, but many people read second and third class mail only as time and interest permit.)

Second class. Intended for non-critical business-related messages targeted for a wider distribution than first class messages.

Third class. Intended for non-business broadcast messages, including the buying and selling of personal items and requests for general information.

The prerequisites for effective use of a mail system (Hjalmarsson et al., 1989; Schaefermeyer & Sewell, 1988)--(a) that a terminal should be easily accessible to each user, and (b) that people to be contacted also use the system--are largely satisfied within the Tandem environment. All employees are provided with direct access to the corporate electronic mail system, and e-mail is the primary communication medium within the company.

An organization's policy choices influence the development and ultimate form of its internal systems (Sproull & Kiesler, 1986). Tandem's organizational philosophy matches the architecture of its electronic mail network, one requirement for an effective system suggested by Glenn Habern of Arthur Young & Co. (Mantelman, 1987). The development of the Tandem system was clearly influenced by the surrounding social structure; Tandem is well-known as an employee-oriented company that promotes open communication and strives to create a positive work environment. Also reflective of the organizational philosophy is what Kiesler (1986) terms a "light-handed policing policy" with regard to e-mail. Although a well-defined corporate policy regarding acceptable mail usage exists, only the most egregious violations of the policy are likely to be punished.

As Kiesler (1986) points out, e-mail is an important social benefit which produces feelings of affiliation and commitment to the organization. The availability of third-class mail for personal use exemplifies the corporate commitment to employee satisfaction; and Tandem's flexible mail policy is validated by Mueller (cited in Mantelman, 1987), when he states: "Given all the advanced technology, we tend to forget the value of social networking, the informal gossip channels, and verbal and written grapevines that persist in all organizations."

Communication

To date, research into the organizational impact of electronic communication media has focused primarily on the issues of (a) media effectiveness and (b) user attitudes toward and acceptance of the different media (Moore & Jovanis, 1988). Although acceptance of e-mail is a "given" in the present research, it is nonetheless interesting to note the correlation between acceptance and expectations demonstrated by Hiltz (1988). In that study, users had high expectations of productivity enhancement, due to the anticipated improvements in ease of reaching people, expanded leads to useful information, increases in one's "stock of ideas," and the opportunity to become acquainted with new people on line, and they accepted the new system readily.

User acceptance of an e-mail system is an important first step toward enhancing communication in the business environment, but effective system use also dictates the identification and resolution of related communication problems that arise as the system is used. Mishikoff (1986) points out that, despite widespread acknowledgement that computers can enhance the productivity of organizations by facilitating more timely and cost-effective interpersonal communication, insufficient attention has been paid to the related subject of productive communication. In order to achieve functional literacy--the information design and management skills needed in contemporary working life--it is necessary to investigate the special challenges that computers pose for the way people handle written information (Wright, 1988).

Moore and Jovanis (1988) define a "complex communication activity" as "one in which the recipient might have difficulty understanding the

message upon receipt" (p. 265). Although this definition implies that factors such as structural complexity and sophisticated vocabulary are the primary culprits in communication breakdowns, various types of ambiguity and the lack of nonverbal cues can also make even a simple message hard to understand. As Winograd (1984) notes, "as with every aspect of language, the full understanding of any given speech act is always enmeshed in the unarticulated background expectations of the speaker and the hearer" (p. 71). The key to identifying the causes of e-mail miscommunication therefore appears to lie in an understanding of the users' expectations related to the system.

Gautschi (1989, February) suggests that inadequate attention to the process of communication may derive from the perception that communication is natural, instinctive, and simple. He points out, however, that a number of factors can distort a message and result in misinterpretation: interpersonal issues such as relative status and bias; the subject matter of the communication; the situational context of the communication; and ambiguities inherent in the language, to name a few. Gautschi (1989, April) facetiously suggests that, to perfect what he terms "Machiavellian" communication, the speaker should (a) avoid considering any differences of perception that might exist between himself and the listener, and (b) assume that the listener has the same frame of reference as himself.

Speaking and Writing

Speaking and writing are linguistically distinctive (Blass & Siegman, 1975), and speakers and writers engage in different cognitive processes (Liggett, 1985). Differences between the two communication modes have been attributed both to processing considerations, such as the opportunity to edit written text, and to situational considerations, such as the degree of

involvement between the speaker or writer and the audience (Biber, 1986). In the traditional view, writing and speaking are considered dichotomous. Writing is analytic and sequential, characterized by rational, critical thinking, with meaning and authority contained in the text; and speaking is personal, emotional, and context-bound (Murray, 1988).

Murray (1988) takes issue with this traditional view, as well as with more recent research which has postulated an oral/literate continuum having academic writing at one end of the scale and casual conversations at the other. As examples of oral and written communication that do not fit the traditional stereotypes, she contrasts hand-written notes stuck on the refrigerator door with carefully planned and integrated speeches. Biber's exhaustive 1986 study of spoken and written textual dimensions in English lends credence to this position. He points to a broad range of variation in both speaking and writing, associated with differences in communication purpose, situation, and processing strategies.

Murray (1988) maintains that e-mail can share characteristics of speech (such as fragmentation and personal involvement) as well as of writing, and that the characteristics of e-mail message language and style are determined by both form and context. Sproull and Kiesler (1986) support this view, observing that people not only make announcements via e-mail, simulating the function of a paper memo, but also carry on "conversations" and discussions, simulating the function of the telephone or a face-to-face meeting. Eklundh (1987) agrees, pointing out that the sequential linking of computer-mediated messages into "comment chains" shows distinct similarity to spoken dialog, despite the written form and the inherent delay between successive messages.

The effectiveness of spoken communication may be partly explained by the participants' inherent effort at maintaining or improving their existing relationship and their extensive shared background (Biber, 1986). Another possible explanation is redundancy; people will tend to introduce tangentially relevant information to "round out" a conversation, whereas they are not so likely to expand a written message in this manner (Kiesler, 1986; Liggett, 1985). (Ford, Weeks, and Chapanis [1980] cite research in which subjects were found to use approximately 13 times as many words as were really needed when communicating verbally. Blass and Siegman [1975] point to evidence that speech is characterized by greater repetition than is writing.) Conversely, careful writers tend toward parsimony in word count, attempting to convey their message accurately with as little extraneous verbiage as possible. Again, e-mail emerges as a hybrid medium. It is typically neither as redundant (and therefore not as complete in its expression) as speech, nor is it as carefully planned as writing is generally assumed to be.

In today's business environment, the activity of writing accounts for a significant portion of the working day, but it is not generally considered to be a "legitimate work activity" (Wright, 1988). Both radio and television have led to a bias in favor of a spontaneous, natural communication style, and this bias extends to writing in the workplace (Galati, 1986). Galati points out that we are now in an age which will see an increase in the importance of writing, but that, because we no longer read as much as in previous times (having become largely a visually oriented society), we are not well-equipped to predict how the reader will receive and interpret our written messages.

Blass and Siegman (1975) attribute the generally accepted characteristics of written communication (e.g., that it requires fewer words than speaking, is

better organized, and is less superficial) to the difference in visual contact between the writer or speaker and the recipient of the communication. These researchers equate high visual contact with (a) increased psychological pressure to react quickly, and (b) a concomitant decrease in situation control on the part of the recipient. Evidence of this pressure and its effects may be seen in research demonstrating that speakers tend to use shorter sentences than writers (Blass and Siegman, 1975), and that speakers' choice of words inclines toward the monosyllabic and familiar (Liggett, 1985).

In simple terms, the writing process may be divided into planning, drafting, and revision; this breakdown agrees with what writers at work say they do (Wright, 1988). However, the task of writing clearly and effectively is much more complex. As Bridwell-Bowles (1987) points out, writing involves, among other things, attention to "orthography, formatting, inventing (i.e., gathering ideas and information), selecting appropriate information for a particular purpose, organizing patterns appropriate to the particular mode of writing, adapting style and content for diverse readers, revising, editing, and proofreading" (p. 79). Even a cursory review of e-mail messages reveals that many of these steps are routinely skipped, not surprising in light of findings by Haas (1989) that letters composed with the personal computer exhibited significantly poorer quality than those produced with pen and paper.

In a 1988 study that compared human-human (spoken), human-computer (spoken), and human-computer (typed) communication characteristics, Hauptmann and Rudnický discovered that the typing group used significantly shorter utterances, fewer total words, and fewer distinct words than did either of the speaking groups. Haas (1989) and Wright (1988) cite evidence that the use of computers for writing tends to shorten the planning

time significantly. (However, Haas found that the amount of time spent rereading text increased in the computer condition, perhaps as compensation for the reduction in planning, or because of the inherent difficulty of getting "a sense of the text" on-line.) Kiesler (1986) notes that the lack of delay time between composing and sending an electronic mail message provides little incentive to the sender to consider the effect of the message.

E-mail is a written communication medium. Given that the current trend is toward a simplified style of writing, that writing in general (and particularly computer-mediated writing) tends to be more compressed than speaking, and that spoken communication is potentially clearer due to redundancy and the presence of nonverbal cues, it is especially incumbent on e-mail writers to take the time to compose unambiguous messages, and on e-mail readers to be tolerant in interpreting these messages.

E-Mail Problems

Lack of nonverbal cues. Short, Williams, and Christie (1976) note that "at least some forms of non-verbal behaviour have evolved before mankind became distinct from the apes, and are at least to some extent both hereditary and not under conscious control" (p. 25). Well over one-half (65-90%) of the meaning of face-to-face communication is carried by the body (Elgin, 1983) in the form of nonverbal cues. These cues function not only in the passage of information from one person to another, but also serve to integrate the communication process (Short et al., 1976). They make the communication seem personal and increase the social regularity of the process (Kiesler et al., 1985).

In discussing the importance of nonverbal cues in oral communication, Gautschi (1988) points out that such cues travel in both directions, not

only as a component of the message (from the initiator to the recipient), but also as active feedback on how the message is being received (from the recipient to the initiator). Speakers normally adapt their ongoing messages to the recipients' responses; clearly the efficiency of this adaptation is diminished in the absence of nonverbal cues (Short et al., 1976). Such cues combine to form what Hirsch (cited in Liggett, 1985) terms a "tacit situational understanding," and they provide a sense of continuity between sender and receiver (Ford et al., 1980). In fact, Elgin (1983) goes so far as to describe a listener's active participation in a conversation as a virtually choreographed set of body movements which are closely synchronized with those of the speaker.

Nonverbal cues are severely limited in electronic mail, a fact which may not be fully appreciated by e-mail users. As Wang (1985) notes, we "raise our eyebrows and wave our hands" when we talk, even if we are talking on the telephone (p. 1). Similarly, the writer of an e-mail message may unconsciously assume that the emotional context of his message is travelling to the unseen recipient along with the text, reflecting what Liggett (1985) sees as the difficulty of adjusting for a present audience in speech and an absent one in writing. In particular, e-mail attempts at humor or irony face an uncertain reception; according to Shapiro and Anderson (1985), they "usually don't work, and appear quite differently in the cold light of a new day, a new computer, or a new context" (p. 13). An example of a facetious e-mail message with numerous positive and negative responses (all unedited) from Tandem's third class mail are included as Appendix A.

Speaking is a spontaneous form of expression. When we speak, nonverbal cues such as facial expression, tone, inflection, body posture, and

volume are important components of the total message. Conversely, a written message is typically less spontaneous than one which is transmitted verbally, but tends to be more carefully worded to ensure clarity of meaning in the absence of nonverbal cues. Murray (1988) notes that e-mail is a hybrid medium that shares certain characteristics with both oral and written communication. E-mail is unique because it is used for personal interaction, like the telephone, and simultaneously resembles a memo in its lack of social context cues (Kiesler, 1986). Both production and delivery of e-mail are fast compared to other types of written communication (Eklundh, 1987). Although an e-mail message is written, it can nonetheless be quite spontaneous--people will dash off a message and hit the "send" key in about the same real time it would take them to make a telephone call or walk down the hall to a colleague's office. (It should be noted, however, that Kiesler et al. [1985] found computer-mediated communication to be significantly less spontaneous than face-to-face communication between people who were not acquainted with one another.)

Various strategies for introducing nonverbal cues into written messages have been investigated. Murray (1988) points out that, while conventions for establishing the "mood" in computer-mediated communication are still being developed, some techniques are presently in use. For instance, the insertion of words indicating state of mind, such as "humpf" or "sigh"; special punctuation, such as asterisks (*) for emphasis; and graphical "happy face" representations may be used to set the tone for a message:

- :-) for "happy";
- :-(for "sad";
- ;-) for "facetious" (winking); and

:0 for "surprised" (p. 364).

The use of such tone-setting aids may help to alleviate misunderstanding, for instance when a message contains ironic undertones. One technique that should be used with caution, however, is that of typing the entire message in capital letters; recipients often report the feeling of being "shouted at" when they read such a message, regardless of the content.

McMaster and Grinder (1980) suggest that the effectiveness of communication correlates directly with the degree to which the words of a message relate to direct sensory experience. A potential, but as yet unconfirmed, method for improving the effectiveness of written messages in this regard is a neurolinguistic programming technique called "sensory predicate matching." Durand, Weitzel, and Hansen (1989) conducted a preliminary study to determine the viability of applying sensory predicate matching to electronic communication, as a means of enhancing the rapport that is lost due to the lack of nonverbal cues. According to the theory underlying their study, people have preferences about their sensory modes. A person's primary representational system--the system used to store and recall experiences, either visual, auditory, or kinesthetic--can be identified by analyzing his or her communication for the predominant sensory predicate type (Elgin, 1983). For example, "hear," "sound," and "harmonious" are examples of auditory predicates; "smooth," "feel," and "soft" of kinesthetic predicates; and "clear," "see," and "picture" of visual predicates. Studies have found that matching sensory predicates can enhance rapport in face-to-face communication; the authors wondered whether this finding could be extrapolated to written communication. The study by Durand et al. (1989) sets the stage for research in this area by demonstrating that written communication does in fact contain sensory

predicates, although the incidence of such predicates is much less than it is in spoken communication.

Ambiguity. In the absence of nonverbal cues to clarify the message and provide the sender with immediate feedback regarding its clarity, particular care must be taken to avoid introducing ambiguities into electronic mail messages. There are many different categories of ambiguity. Lexical ambiguity (e.g., "Stay away from the bank") occurs when a word has more than one meaning; in this example, "bank" could refer to a financial institution or the side of a river, and additional contextual clues are needed to clarify the correct meaning. An example of structural ambiguity is the sentence: "He saw that gasoline can explode," which can be read two different ways (with "can" being either a noun or an auxiliary verb). In both instances, however, "he" remains the subject of the sentence. More confusing still are examples of deep structure ambiguity, such as "The chickens are ready to eat," in which it is not even clear who or what constitutes the subject of the sentence. Other types of ambiguity are semantic ("David wants to marry a Norwegian"), and pragmatic ("When a bright moon ends a dark day, a brighter one will follow") (Winograd, 1984, pp. 61-62). Clearly, ambiguity of any sort should be avoided in composing e-mail messages if effective communication is to be achieved.

Feedback expectations. When people speak to one another, either face-to-face or over the telephone, they expect and receive immediate feedback. This feedback includes both verbal and nonverbal signals that indicate the recipient's understanding and acceptance of the message, and it is essential to mutual understanding (Eklundh, 1987). Conversely, there is typically an expectation of some delay when the communication is in written form. For e-mail, the expectation on the part of the sender may be for immediate

feedback due to the spontaneous nature of the communication, even though the message is actually in written form. Conversely, the recipient may feel that some delay in responding is appropriate, precisely because of the written form of the message.

Eklundh (1987) found that independent, explicit feedback (defined as a linguistic signal indicating agreement or disagreement, but including no additional information) occurred in computer-mediated communication significantly less often than in face-to-face or telephone interactions; these findings are substantiated by Kiesler et al. (1985). Eklundh's research indicates that computer-mediated communication does not encourage independent "conversational" feedback. In general, users reported that providing simple feedback which did not add substantive information to the discussion at hand was "too much trouble" and generally inappropriate to the medium. (However, explicit feedback was quite common as a lead-in to responses containing additional information; Eklundh suggests that, in this case, such feedback serves to create coherence in computer-mediated dialog.) Eklundh also found that it was common for users to provide no response at all to a computer-mediated message, and that senders tended to construe message receipt as equivalent to message acceptance in the absence of explicit feedback.

Hjalmarsson et al. (1989) note that a social demand has developed whereby a mail message should be answered within 12 hours (p. 463). These researchers also point out that long response time is a frequent complaint of e-mail users. This complaint may be due to feedback expectations. People may expect a quick response (as if they were engaged in spoken communication), even though e-mail is in fact a writing-based medium.

Eastman Kodak found that the use of e-mail for engineering review of new product specifications improved the quality of the technical interaction, because e-mail gave the respondents more time to "reflect and consider responses" (Tips, 1987). But they also found that the risk of being misunderstood increased with network communication, and that failure to respond was a problem. Given the volume of e-mail and other correspondence that assails people in today's organizational environment, delays in responding to messages are not surprising, and e-mail messages are sometimes ignored. Users' expectations concerning the appropriate delay between the time a message is sent and the time a response is received may not correlate with one another, and communication problems may emerge as a result.

Perceived anonymity. Another user expectation that can hamper effective communication concerns the perception of anonymity--characterized by Kiesler et al. (1985) as "technologically induced anonymity"--that attends electronic mail messaging, as if the hardware separating writer from reader were a protective shield against unpleasant repercussions. (In fact, with the exception of certain e-mail vehicles that are intentionally structured to provide genuine anonymity to the sender, the origin of e-mail messages can normally be traced without difficulty.) Kiesler et al. suggest that computer-mediated communication tends to elicit asocial or unregulated behavior, due to the depersonalization of the medium. They point to the increased focus of attention on the message itself, and the concomitant decrease in empathy toward the people with whom one is communicating. Sproull and Kiesler (1986) attribute this phenomenon to the attenuation of nonverbal and other social context cues in computer-mediated communication. In their study, they found that "flaming" in e-mail messages occurred

with nearly eight times the frequency of similar outbursts in face-to-face settings. (Rice and Williams [1984] suggest, however, that our restricted use of the medium may lead to the observed depersonalization as much as any physical restrictions inherent in the medium itself.)

The findings by Blass and Siegman (1975) regarding disengagement between dyadic interactants and increase in social distance as the communication mode shifted from speaking to writing lend weight to those reported by Sproull and Kiesler (1986). The vitriolic nature and harsh language of some mail messages is surprising, and may not really represent the persona of the writer; a message written and sent spontaneously in anger is similar to a "temper tantrum" in the realm of oral communication. As Sproull and Kiesler (1991) note, the misperception that e-mail messages are ephemeral can lead to decreased concern over the social reception which the messages will encounter. While verbal temper tantrums are not generally recorded for posterity, an outburst via e-mail becomes a lasting record that can be shared with the rest of the network world forever.

In fact, as Shapiro and Anderson (1985) point out, electronic messages can live on for years in disk archives, to reappear later in printed forms much more formal than originally intended. As the authors note, "There is a volatility to the medium, and yet a strange permanence" (p. 2). (A related and very important issue, which deals more with ethics than with etiquette, is the fact that the stored messages can also be modified, with the result that comments not included in the original message may nonetheless be falsely attributed to the sender.)

Although computers were originally used mostly by engineers and scientists, they are now used extensively as a general-purpose communication

tool. As with other technological innovations, the computer has had not only its intended technical effects, but also some unintended social effects. For example, Kiesler (1986) notes that computer-mediated communications can and do cut through organizational norms, such as position and status barriers, and Szlichcinski (1983) notes a tendency toward relaxation of office etiquette when professionals begin to type and send their own messages.

Computer mail limits the "social context" information that would accompany the message in a face-to-face setting. Without these context cues, people tend to focus more attention on the message than on the communication, with a resultant increase in the level of perceived anonymity. They feel less bound by standard interpersonal norms, such as empathy and concern over how they are perceived (Kiesler, 1986). Kiesler points out that e-mail messages do not typically provide clues as to the sender's status, personality, or situation, nor does the sender necessarily know these things about the intended recipient. The result is a decrease in the influence of convention, with a resultant increase in the likelihood of extreme, impulsive, and self-centered behavior; in other words, the communication may become unregulated.

Murray (1988) notes that the language of a given interaction may be affected as much by the relationship between the communicants as by their individual characteristics. This observation seems to lend authority to Kiesler's assertions regarding the lessened influence of social convention in e-mail communication; however, Murray (1988) could not corroborate Kiesler's findings regarding the tendency of e-mail users to use more emotive and inflammatory language than would typify face-to-face communication. (This discrepancy is not surprising in light of Haberm's contention [cited in

Mantelman, 1987] regarding the impact of an organization's philosophy on the development of its computer network. International Business Machines [IBM, the subject of Murray's study] is widely viewed as having a relatively rigid structure, and IBM employees may be less likely to air their personal views over e-mail--there was, in fact, documented concern regarding "unintended" readers--than would employees in a more relaxed and open environment such as Tandem's. Crawford's 1982 study of e-mail implementation at DEC also supports the link between organizational culture and network development; he notes that DEC's norm of verbalizing concerns openly and directly led to an early and high degree of user satisfaction with the system.)

Although the diminished impact of social convention has attracted particular attention as a characteristic of computer-mediated communication, the phenomenon attends all communication media to some extent (Sproull & Kiesler, 1986). Szlichcinski (1983), for instance, points out that "it is widely acknowledged that things can be said over the telephone which would never be said face-to-face" (p. 255). He also notes that audio teleconferences tend to be briefer and more task-oriented (less personal) than face-to-face meetings, and that participants' behavior seems to be more aggressive because social and group pressures appear to exert less influence.

E-Mail Solutions

Each piece of a communication has its own discrete goal in terms of information exchange. Whether these goals are satisfied or blocked depends on the effectiveness of the communication (McMaster & Grinder, 1980). Sproull and Kiesler (1991) note the misleading assumption on the part of some e-mail proponents that increased speed is the only variable in this new

medium; in fact, as Hiltz (1988) has pointed out, the availability of a computer-mediated communication system does not automatically lead to effective use of the system. Given the widespread application of electronic mail and the enormous potential for productivity enhancement that this medium provides, it is important to develop strategies for ensuring that e-mail communication is as effective as possible.

Liggett (1985) notes that, while good writers take care to compensate for the lack of contextual cues in their compositions, weak writers tend to represent meaning inexplicitly, in essence relying on the more familiar process of speaking to dictate the form their compositions will take. Liggett proposes that trainers couple field studies of how on-the-job writers use communication systems with increased attention to the speaking-writing relationship in developing their course materials and curricula. According to Halpern and Liggett (1984), e-mail writers must learn to emphasize the key points that readers will see on the screen, through such strategies as format signals, parallel structures, and punctuation.

Wright (1988) cites studies indicating that the level at which a writer revises his text corresponds to his writing experience. Less experienced writers tend to revise at the word level, whereas more experienced writers look at the entire message for organization and clarity before attending to lower-level details. This finding may have important implications for e-mail communication, since most e-mail users are presumably not experienced writers. The advisability of reviewing messages globally for content and impact, rather than concentrating exclusively on details such as spelling and punctuation, should be stressed.

Wright also points out that people will read work-related information only if they are looking for the answer to a particular question. If they think they already know the information contained in a message, they will not read it. It is therefore important to write messages clearly so that the reader does not have to guess at the intent and content of the message.

Eklundh (1987) suggests that e-mail writers should attempt to avoid feedback situations by compressing messages, for example by including all alternatives in a single message rather than presenting them sequentially in multiple messages. Such grouping of relevant information and questions into "chunks," and similar anticipatory communication strategies, are generally more successful in the computer medium.

Galati (1986) notes that training professionals have erroneously assumed that traditional writing skills will transfer automatically to computer composition, and that nothing more than training in equipment use is required to effect a smooth transition to the new medium. Galati disagrees with this assumption, and maintains instead that the emergence and growing popularity of e-mail necessitates the development of new communication skills, such as writing quickly and concisely. She points out that computer composition demands that the writer be cognizant, not only of the intended goal in sending the message and his or her own position on the subject, but also of the reader's knowledge base, attitudes, and potential reaction. Messages should also be framed taking into account the values and accepted communication style of the surrounding business environment.

Kiesler et al. (1985) support Galati's assessment of the current state of e-mail training. They point out that, although some user manuals include haphazard suggestions on appropriate use of the medium, people generally

receive no formal instruction in computer-mediated communication etiquette. The underlying assumption appears to be that people either do not respond differently, or in fact respond more efficiently, to computer-transmitted information. Kiesler et al. point out, however, that the communication setting has a significant influence on the nature of individuals' responses.

Writers can be concise without sacrificing clarity. In their study of self-imposed brevity in dyadic communication, Ford et al. (1980) demonstrated that restricting writers' vocabularies (total word count) did not degrade the effectiveness of their problem-solving communication. Results were measured on the basis of an interaction classification system devised by the researchers, whereby messages were analyzed for flow transmission, information transmission, judgement remarks, feedback remarks, and extraneous statements. Writers in the "restricted vocabulary" group were found to use a higher percentage of messages dealing specifically with the information content of the problems than the control (unrestricted) group. The percentage of nouns used in the self-limited writers' messages increased significantly, whereas the use of pronouns (which tend to be more ambiguous than nouns) declined sharply.

Sproull and Kiesler (1986) note that e-mail message salutations and closings reflect the sender's attention to the social relationship underlying the communication. Increased awareness of the importance of such details, in compensation for the lack of nonverbal cues, may make e-mail messages more palatable in some cases.

Shapiro and Anderson (1985) have developed a list of strategies that may be useful in e-mail communication; this list is included as Appendix B.

An unpublished but apt variation on this theme, Tom Van Vleck's The Risks of Electronic Mail, is included as Appendix C. Wright (1988) suggests a simple heuristic (slightly modified for the present context), whereby a writer might identify potential trouble spots in the message before hitting the "send" key:

1. What does the recipient already know?
2. How will the recipient react to the message?
3. How will the recipient use the information contained in the message?

The standard e-mail system provides an effective communication vehicle, but it cannot help users with message content; therefore, each writer should take care to ensure that his or her e-mail messages are explicit and unambiguous. Effective use of the medium demands a clear sense of audience and purpose (Halpern & Liggett, 1984); as Liggett (1985) says, writers "struggle alone to anticipate the needs of an absent audience" (p. 49). Planning is critical; it is during the planning stage that consideration of purpose and audience occur (Hayes & Flower, 1980). Unfortunately, computer composition tends to reflect relatively little planning in comparison with other media (Haas, 1989). By taking a moment to review each message with the above heuristic in mind, a writer will be more likely to ensure that his expectations, and those of his reader, are satisfied. If writers write clearly, and readers read tolerantly, the effectiveness of electronic mail communication will be enhanced.

Summary

The use of electronic mail communication in organizations is increasing rapidly. In many companies, such as Tandem Computers, e-mail is the

primary vehicle for intraorganizational communication, and use of the medium is dictated as much by necessity as by choice.

The advantages of electronic mail over traditional communication media--its speed, asynchrony, and distribution capability, to name a few--are well documented. The impact of e-mail on communication effectiveness has also been studied; in particular, the absence of nonverbal cues, so important in establishing the situational context and conveying meaning in a face-to-face setting, has been shown to contribute to miscommunication via e-mail. The tendency for readers to delay their response to e-mail messages is a source of frustration to e-mail writers. The potential for ambiguity in e-mail messages mirrors the pitfalls inherent in any written communication medium. And the "license to kill" that the perceived anonymity of electronic mail provides--realized in the phenomenon popularly termed "flaming"--has been the subject of many studies.

Recognition of the above symptoms of e-mail communication malaise has prompted some authors to develop "etiquette" guidelines for e-mail users. The common themes are foresight and tolerance. The writer should review his message from the perspective of the intended recipient, and the reader should give the writer the benefit of the doubt when miscommunication threatens, rather than immediately assuming malicious intent.

Chapter 3

Methodology

Research Questions

The questions which this study seeks to answer are as follows:

1. Do e-mail users tend to hold stereotypes of speaking and writing in the areas of feedback, planning, formality, ambiguity, and ephemerality?
2. If the answer to #1 is "yes," do these stereotypes tend to result in any oral/literate bias in e-mail users' perception of e-mail communication?

Research Design

This study was conducted as a nonexperimental field survey, based on the observation of subjects who fell naturally into the condition of electronic mail usage at Tandem Computers. Data were collected by means of a questionnaire developed on the basis of (a) the literature review and (b) two informal polls of Tandem e-mail users. (See Appendix D for selected excerpts from the responses to these polls.) A section requesting information on job classification, sex, year hired, and race was included in the questionnaire; this information was compared against known demographics for the purpose of validating the representativeness of the sample. In advance of the actual

survey, the instrument was sent to a randomly selected pilot group, in an attempt to identify any needed modifications to the instrument or process.

The questionnaire was delivered online, via electronic mail. (Sproull's 1986 findings suggested that this method might be expected to result in a higher response rate than would a standard pencil-and-paper questionnaire. The effect of the medium on the nature of the answers was not expected to be significant, due to the relatively objective nature of the study.) All questionnaires were sent via "certified" first class electronic mail, so that receipt could be readily determined by the researcher. A copy of the pilot questionnaire (including preletter) is included as Appendix E; the final questionnaire is included as Appendix F.

It was understood that, by opting for a one-measurement, cross-sectional design, determination of simple relationships among variables (rather than clear cause-effect findings) was the realistic objective. However, in the absence of precedents in this particular line of inquiry, such an objective seemed worthwhile.

A consideration in this study was the temptation to investigate language and cultural effects on oral/literate stereotypes and e-mail perceptions, given the multinational character of the Tandem population. Information regarding these variables would doubtless have been quite interesting, and might have enhanced the generalizability of any findings. However, it was recognized that language and cultural aspects were not of direct relevance to the investigation at hand. Therefore, in order to minimize the likelihood of contamination of results, the sampled population for this study was limited to permanent Tandem employees in the Northern California area, a target population of approximately 4,500 people. (As a small concession to

temptation, however, one question was included in the demographics section soliciting information on the native language of each respondent, in order to obtain some sense of whether further study along these lines might be warranted.)

User attitude toward e-mail (i.e., whether the user likes using the communication medium) was viewed as a potential confound to the research project. This variable was addressed by administering the same questionnaire to both the legitimate sample, randomly selected from the entire sampled population, and to a second group of volunteer third-class mail readers. Use of third-class mail at Tandem is strictly optional and primarily social, and the assumption that third class mail users like using e-mail seemed reasonable.

Pilot survey. A thorough review of the literature covering computer-mediated communication suggested that the oral/literate stereotype approach to the subject remained largely unexplored. It was therefore decided to develop a survey instrument independently, without attempting to locate and leverage existing instruments. Several books on the subject of survey development were consulted, including Berdie, Anderson, and Niebuhr (1986), Dillman (1978), Sudman and Bradburn (1987), and Viladas (1982).

The initial survey consisted of 24 questions, plus a request for some demographic data. Questions #1-7 related to various oral/literate stereotypes, and the remaining questions sought to elicit the respondents' oral/literate e-mail biases relative to these stereotypes. The number of "e-mail" questions associated with each stereotype was completely variable. Responses were requested on a five-point Likert scale, with the response options coded "Agree Strongly," "Agree Somewhat," "Neither Agree nor Disagree," "Disagree Somewhat," and "Strongly Disagree."

One week prior to distributing the pilot survey, a preletter was sent via electronic mail to each of the 20 individuals who had been randomly selected. The aim of the preletter was to advise the subjects that a questionnaire would be mailed to them in a week's time; to explain the purpose of the survey and the affiliation of the researcher; and to ask for their cooperation in completing the survey. Also solicited were any comments that might lead to improvements in the survey instrument itself.

Fifteen completed surveys were returned. The five nonrespondents were either too busy, or were unavailable for some other reason (e.g., maternity leave). An analysis of the comments and data received resulted in several modifications to both the questionnaire and the process:

1. The concept of using a preletter to advise members of the sample group that they had been selected to participate in a survey was abandoned. The preletter was essentially informative, and was not designed to actually solicit participation; recipients were basically told, as diplomatically as possible, they they were going to receive the questionnaire. On reflection, this step seemed to constitute an unnecessary intrusion on the time and attention of the sample group.

Additionally, the introductory message that accompanied the survey was revised to emphasize that the project was not being undertaken at the direction of management, and that all responses would be kept completely confidential. It was anticipated that these assurances would relieve any anxieties the respondents might have had regarding the effect of their responses on their job tenure.

2. The five-point Likert scale, on which each response option was clearly identified, was replaced by a six-point scale labeled only at the end

points with "Agree" and "Disagree." The primary motivation for this change was the relatively high number of "Neither Agree nor Disagree" answers received on the pilot survey. This response option was perceived in retrospect to be too tempting to someone completing the survey in a hurry. Furthermore, since the e-mail questions were seeking to identify polarization toward either a speaking or a writing bias, the mid-range answers were not especially useful.

3. The number of stereotype factors were condensed from seven to five, by combining "spontaneity" and "planning" into a single question, and by reducing the two "formality" questions to one. The balance of the questions, which related to e-mail perceptions, were revised such that four "e-mail" questions were associated with each "stereotype" question, as shown in the following table.

Table 1
Association of "Stereotype" and "E-Mail" Questions

Factor	Stereotype Question	E-Mail Questions
Feedback	#1	#8, #12, #13, #18
Planning	#2	#6, #7, #15, #19
Formality	#3	#11, #16, #22, #24
Ambiguity	#4	#9, #14, #17, #21
Ephemerality	#5	#10, #20, #23, #25

A cursory evaluation of the pilot survey data suggested that this more organized format would yield data better suited to statistical analysis.

4. The questions were rewritten using terms such as "generally," "usually," and "tends to be," in response to comments that the pilot survey questions did not adequately cover the wide variety of e-mail situations that might exist. The introductory message was also modified to clarify that the participants' spontaneous "gut" reaction was wanted, rather than an in-depth analysis of each question vis-a-vis the myriad possible e-mail examples that could apply. Finally, the introductory "Dear Survey Participant" was abandoned in favor of a more informal "Hi"; the former greeting seemed to imply an assumed acquiescence that might have been offensive to the recipients.

An interesting fact revealed by the pilot survey was that, although every individual in the sample had an e-mail address and access to the system, not everyone actually used the system. However, the vast majority of respondents reported logging on to electronic mail at least twice a day.

Final survey. The final survey was sent via e-mail to the random sample of 100 e-mail users (Group #1), and to the self-selected sample of 109 third-class e-mail users (Group #2). After one week, 39 completed surveys had been returned by Group #1, and 61 by Group #2. The majority of the surveys were completed and returned online. A follow-up e-mail message with the seductive header "Did you...? Would you...?" was then sent to both groups, with the result that an additional 24 Group #1 and 18 Group #2 surveys were returned.

Two weeks later, a hard copy of the survey plus a return envelope was sent to the nonrespondents in Group #1. (No further efforts were made to retrieve surveys from Group #2; the total response rate for this group was 72%.) The final stratagem was an e-mail message asking for the reason for nonresponse, followed by a personal phone call. All of these tactics taken

together resulted in a total Group #1 response rate of 92%. Nonrespondents cited reasons such as "too busy," "no interest," "surveyed to death," and "don't use e-mail" for their refusal to participate. In addition, one survey was lost, two people were completely unavailable for comment, and one person appeared to have left the company.

Target Population and Sampling Design

The sampled population for this study was the Northern California employee base of Tandem Computers, a multinational computer company. Subjects were randomly selected in order to minimize the effects of uncontrolled variables, such as age, sex, education, computer literacy, technical training, job function, and e-mail experience. A comparison of self-reported characteristics of the sample with known demographic data (job status, sex, race, and year hired) adequately verified the representativeness of the sample in the researcher's opinion. Due to the confidential nature of the data, however, they are not included in this paper.

In order to derive the sample, it was first necessary to combine the e-mail distribution lists for the 33 nodes comprising LOCNCAL (the Northern California distribution) into a single listing. This task was accomplished by importing each individual node listing into an "edit" file, and deleting all extraneous header material, location addresses, temporary employees, contractors, and subcontractors. The result was an 84-page computer printout with approximately 54 names on each page. This format was well suited to the random selection of the desired 100-person sample using a table of random numbers.

The target population for the study was all present and future users of e-mail, as defined at the outset of this paper, to the extent that any findings may be generalized to this broader population.

Statistical Analysis

As noted previously, the survey was administered to two separate groups: Group #1 (randomly selected) and Group #2 (self-selected). The following statistical treatment was applied to the data received from each group. (See Appendix G for an explanation of how the data were coded.)

1. The Cronbach Alpha reliability measure was applied to each of the five "factor clusters" (see Table 1), to determine whether individual subjects tended to answer the questions within each cluster in the same way. Questions that were revealed as unreliable based on this measure were excluded in the remaining analyses. Correlations between the questions within each factor cluster were also calculated.
2. Various measures of the central tendency of each subject's responses to the "e-mail" questions (#6-25) were calculated, as a rough gauge of the subject's overall oral/literate e-mail bias. These data were then broken down by factor (i.e., feedback, planning, formality, ambiguity, ephemerality), in order to determine whether a factor-related oral/literate e-mail bias could be established. Additionally, the correlation coefficients for these factor cluster means were calculated.
3. The factor cluster means were compared to job status, sex, native language, and frequency of e-mail logon, to see whether interesting patterns might emerge.
4. The mean, median, and standard deviation for each question (#1-25) were calculated, in order to derive an indication of the general strength of the

oral/literate stereotypes (#1-5) and the overall tendencies in oral/literate bias (#6-25).

Analysis of Threats to Validity

In general, threats to the internal and external validity of a study include reactivity of the survey instrument, Hawthorne effects, subject loss, unreliability, invalidity, and history problems, to name a few (Spector, 1981). Certain of these threats do not apply to single-measurement cross-sectional studies such as the one conducted in this research. For example, history is relatively unimportant, since little can occur to distort results during the short time span taken for data collection. Similarly, although subject loss can negatively impact the validity (and assessment of reliability) of a longitudinal study, it is not expected to be a factor in a study which relies on data collected at only one point in time.

More likely threats to the validity of the present study related to the survey instrument itself, and to the effect of the instrument on the research subjects. Particular care was therefore taken to avoid introducing bias into the design of the questionnaire. Instrument reactivity was also minimized through the use of e-mail to administer the questionnaire, due to the reduced impact of investigator technique and bias that might accompany more personal survey techniques. In addition, a courteous solicitation of help with the survey, and a simple survey design, were expected to reduce any annoyance that respondents may have felt at being asked to complete the questionnaire.

The well-known Hawthorne effect--the phenomenon in which subjects tend to distort their responses because they know they are in a study--was expected to be minimal in the present research. Unlike workers at General Electric's Chicago Hawthorne plant in the early part of the century, Tandem

employees are products of the flexible and people-oriented business environment that characterizes today's Silicon Valley companies. The attention of one more person asking what they think about something was not expected to disrupt their routine to the extent that responses would be distorted.

Chapter 4

Results

Nonresponse Treatment

In several surveys, the subject elected not to answer one or more of the "e-mail" questions (#6-25). The responses for these subjects were thrown out entirely for most of the statistical analyses to which the data were subjected. The only exceptions to this rule were the Intra-Factor Correlations (Table 3) and the Responses to E-Mail Questions by Factor (Table 5), for which a non-response resulted in data exclusion for the affected factor only. Additionally, for the analyses performed on a per-question basis (Tables 9 and 10), a non-response on a given question simply resulted in a corresponding reduction in the number of valid cases for that question set.

The number of valid cases contributing to the results depicted in each table is shown in parentheses throughout the chapter.

Reliability

The reliability of each factor cluster was assessed by means of the Cronbach Alpha test. The test was applied to both Group #1 (random selection) and Group #2 (self-selection) data, but the resultant decision to delete questions #6, #21, and #24 was based exclusively on the analysis of Group #1 data.

The reliability coefficients for Groups #1 and #2, both uncorrected and after deletion of the questions noted above, are shown in Table 2.

Table 2
Reliability of Factor Cluster Questions

Factor	Group #1 Uncorrected (80)	Group #1 Corrected (80)	Group #2 Uncorrected (74)	Group #2 Corrected (74)
Feedback	.76	n/a	.79	n/a
Planning	.60	.70 (-#6)	.53	.66 (-#6)
Formality	.34	.40 (-#24)	.48	.36 (-#24)
Ambiguity	.49	.61 (-#21)	.48	.50 (-#21)
Ephemerality	.41	n/a	.34	n/a

These data show that the questions in the "Feedback" and "Planning" clusters exhibit reasonable reliability; that is, subjects tended to answer the questions in each of these two clusters in a consistent manner. The questions in the "Ambiguity" cluster demonstrate marginal reliability. The "Formality" and "Ephemerality" clusters cannot be considered reliable measures of e-mail users' perceptions of the medium relative to these factors.

Questions within each factor cluster that demonstrate a significant ($p < .05$) correlation with one another are shown in Table 3, and are discussed below. Although Group #2 correlations are reported as a matter of interest, the discussion is limited primarily to the correlations found in the Group #1 data.

Feedback. Based on the reliability coefficients noted above, it is not surprising to find a high number of significant correlations among the questions in the "Feedback" cluster:

Table 3
Intra-Factor Question Correlations

Factor	Group #1	Group #2
Feedback	8-12 = .57	8-12 = .57
[Group #1 (90)]	8-13 = .29	8-13 = .41
[Group #2 (79)]	8-18 = .38	8-18 = .49
	12-13 = .47	12-13 = .31
	12-18 = .51	12-18 = .52
	13-18 = .36	13-18 = .49
Planning		6-7 = .23
[Group #1 (91)]	7-15 = .33	7-15 = .28
[Group #2 (79)]	7-19 = .43	7-19 = .30
	15-19 = .49	15-19 = .59
Formality		11-16 = .25
[Group #1 (91)]		16-22 = .27
[Group #2 (77)]	16-24 = .34	16-24 = .32
Ambiguity	9-14 = .50	
[Group #1 (86)]	9-17 = .22	
[Group #2 (79)]	14-17 = .31	14-17 = .38
Ephemerality	10-23 = .34	
[Group #1 (84)]	20-25 = .28	20-25 = .50
[Group #2 (77)]		

(All correlations $p < .05$)

- #8: E-mail messages should be answered promptly.
- #12: It is inconsiderate to be slow in responding to an e-mail message.
- #13: People should read their first class e-mail at least twice a day.
- #18: It annoys me when I do not receive a prompt response to an e-mail message.

However, these questions also touch on politeness and social upbringing, emotional factors which were not specifically under investigation in the present research. It seems likely that people might subconsciously answer these questions consistently in a manner which would confirm that they, at least, had good manners. The possibility that some such superimposed tendency might be involved suggests that the high reliability of this cluster should be viewed with caution.

Planning. The four "Planning" questions were as follows:

- #6: Most e-mail messages are spontaneous.
- #7: Most e-mail messages are carefully planned.
- #15: I generally plan what I am going to say before generating an e-mail message.
- #19: I expect people to plan what they are going to say before sending me an e-mail message.

Based on the Cronbach Alpha analysis of Group #1 data, question #6 was discarded at the outset. In reviewing the questions in this cluster, it is apparent that the word "plan" appears in the three that were retained. This observation leads to the tentative conclusion that the presumed antithetical relationship between "spontaneity" and "planning," which seemed obvious to the researcher, did not necessarily seem so to the respondents. Again, however, the subtle notion that careful planning is somehow the

"right thing to do" may have contributed to the consistency with which subjects responded to questions #7, #15, and #19.

Formality. The questions that attempted to elicit e-mail perceptions vis-a-vis the factor "Formality" were as follows:

#11: E-mail messages tend to be impersonal.

#16: E-mail messages tend to be formal.

#22: Most e-mail messages have a casual tone.

#24: People are generally careful to use correct spelling and grammar in their e-mail messages.

Here again, the fact that people probably feel that one should use conventionally accepted spelling and grammar in e-mail messages may have contaminated the responses.

Question #24 was eliminated from further consideration during the reliability assessment phase. The wording of this question is such that it could be interpreted as meaning either "I am careful" (which would probably be answered in the affirmative), or "Other people are careful" (which would likely be answered in the negative). A review of the e-mail message samples contained in Appendices A and D will leave the reader with little doubt as to the level of care that is actually taken in much e-mail communication, at least when such communication is of a spontaneous and informal nature.

It is interesting to note the strong correlation that exists for both survey groups between questions #16 and #24, even though the responses to #24 were eliminated from further consideration. This correlation supports the intuitive conclusion that a person will pay close attention to spelling and grammar when composing a formal message.

Ambiguity. The reliability for this factor cluster was marginal, even after deletion of question #21. The cluster contained the following questions:

#9: The meaning of most e-mail messages is clear.

#14: I expect the reader to understand the tone (e.g., serious or facetious) of my e-mail messages.

#17: When I am offended by the tone of an e-mail message, generally it is because the writer meant to offend.

#21: If the reader misinterprets my e-mail message, it is usually because my message was ambiguous in some way.

The strongest correlation (.50) exhibited in this cluster was between questions #9 and #14. A look ahead at Table 10 reveals that respondents tended to agree with both of these questions, indicating a possible bias toward the literate end of the scale. This finding suggests that people expect their e-mail communications to be received and interpreted as intended. As evidenced by some of the responses contained in Appendix A, however, this expectation can lead to problems if uncritically applied.

It is refreshing to note that respondents were generally willing to accept responsibility for misinterpretation of their own e-mail messages on the part of the recipient. Fully 78% of Group #1 respondents recorded an "agree" answer to question #21.

Ephemerality. The questions relating to the ephemerality of e-mail communication were as follows:

#10: The life span of an e-mail message is typically fairly short.

#20: If I receive criticism via e-mail, I usually save the message.

#23: Most e-mail messages are purged after they have been read.

#25: When I criticize someone via e-mail, I expect him/her to save the message.

The correlation between questions #20 and #25 (.28 for Group #1), although relatively weak, is nonetheless somewhat surprising. During the process of coding the survey data, the researcher was intrigued to note the high number of respondents who reported saving critical messages that they received, while at the same time expecting the opposite treatment for critical messages that they sent. A subsequent count revealed that 39% of Group #1 respondents took this dichotomous view.

Responses to "E-Mail" Questions

The central tendency of responses to the entire block of "e-mail" questions (#6-25) is shown in Table 4. This analysis was conducted to see whether any overall oral/literate bias might emerge. As can be seen from the data, however, no such tendency was revealed by this macroanalysis.

Table 4
Aggregate Responses to E-Mail Questions (#6-25)

	Mean	Mode	Mdn.	Var.	Skew	Min.	Max.
Group #1 (82)	3.56	3.55	3.55	.15	.09	2.45	4.60
Group #2 (75)	3.64	3.84	3.65	.16	-.03	2.88	4.56

The responses taken as an undifferentiated group tended to cluster about the midpoint, with a slight leaning toward the high side. The responses to the same block of questions, broken down by factor, are more instructive; they are shown in Table 5.

Table 5
Responses to E-Mail Questions by Factor

Factor	Mean	Mode	Mdn.	Var.	Skew	Min.	Max.
<u>Group #1</u>							
Feedback (90)	4.79	4.50	5.00	.89	-.88	1.75	6.00
Planning (92)	2.29	2.00	2.00	.85	1.21	1.00	6.00
Formality (91)	3.62	4.33	3.67	.78	.19	2.00	5.67
Ambiguity (88)	2.97	2.67	3.00	1.06	.42	1.00	6.00
Ephemerality (84)	3.58	3.50	3.50	.92	-.002	1.50	5.75
<u>Group #2</u>							
Feedback (79)	4.74	5.00	5.00	1.00	-.81	2.00	6.00
Planning (79)	2.59	2.67	2.67	.83	.46	1.00	5.33
Formality (77)	3.71	3.67	3.67	.75	.05	2.00	6.00
Ambiguity (79)	3.07	3.33	3.00	.91	.08	1.00	5.33
Ephemerality (77)	3.70	4.00	3.75	.75	.38	2.00	6.00

Subject to the caution imposed by discussions earlier in this chapter, there nonetheless appear to be definite tendencies within the three factor clusters which demonstrated some reliability. "Feedback" emerges as a factor with a strong bias toward the speaking end of the oral/literate continuum, by virtue of its high mean value (Refer to Appendix G, Coding of Survey Data). Conversely, "Planning" is characterized by a markedly low mean score, and "Ambiguity" also tends toward the low side, suggesting that these two factors may have a closer affinity to the writing end of the spectrum.

Correlation coefficients for the above factor cluster means are shown in Table 6. The strong negative correlation between "Feedback" and "Planning" comes as no surprise, in light of the above discussion. Given that "Feedback" reflects a possible oral bias, the negative correlation between it and "Formality" is also as expected. The positive correlation between "Planning" and "Ambiguity" corresponds to the tendency of both factors to line up on the literate end of the scale. Finally, although the low reliability demonstrated by the questions in the "Formality" cluster may account for the relatively high

Table 6
Factor Mean Correlations for E-Mail Questions

Factor Pair	Group #1	Group #2
Feedback/Planning	-.38*	-.13
Feedback/Formality	-.25**	.05
Feedback/Ambiguity	-.16	-.19
Feedback/Ephemerality	-.04	-.19
Planning/Formality	.27**	.10
Planning/Ambiguity	.33*	.17
Planning/Ephemerality	.04	-.05
Formality/Ambiguity	.19	.02
Formality/Ephemerality	.10	.02
Ambiguity/Ephemerality	-.22	.21

* $p < .01$

** $p < .05$

mean associated with this factor, the intuitive link between it and "Planning" permits the acceptance of the related correlation as reasonable.

Comparison of Categorized Means

Table 7 shows the relationship between the factor cluster means and four categories derived from the "demographics" section of the survey:

1. Job status (manager vs. non-manager)
2. Sex (male vs. female)
3. Native language (English vs. non-English)
4. Frequency of logon to e-mail ($\leq 3x/\text{day}$ vs. $\geq 4x/\text{day}$)

The measure was a univariate F-test with (1,80) degrees of freedom. Values less than .05 (marked with an asterisk) indicate a significant difference between category members, and are analyzed further in Table 8.

Feedback. There appears to be a slight tendency on the part of non-native English speakers to back away from the oral bias that generally characterizes the "Feedback" factor. Certainly this observation must be treated as preliminary, given the small number of non-English cases reported. However, it would not be surprising to find that, in fact, individuals whose facility with English may be limited in some degree are located on the literate side of the overall group mean (4.79) rather than on the oral side.

No firm inferences may be drawn from the Group #2 data, due to the self-selected nature of the sample. However, it is interesting to note that an oral bias appears to characterize (a) females and (b) individuals who log on to the mail system with high relative frequency.

Formality. As in the area of feedback, females appear to lean toward an oral bias in the "Formality" factor.

Table 7
Comparison of Categorized Means

Factor	Job Status	Sex	Language	Logon Freq.
<u>Group #1</u>				
Feedback	.87	.17	.03*	.15
Planning	.47	.39	.98	.60
Formality	.70	.002*	.84	.62
Ambiguity	.73	.61	.27	.68
Ephemerality	.95	.51	.19	.67
<u>Group #2</u>				
Feedback	.79	.03*	.84	.03*
Planning	.28	.08	.49	.78
Formality	.29	.89	.33	.50
Ambiguity	.02*	.11	.12	.89
Ephemerality	.03*	.43	.44	.94

* $p < .05$

Ambiguity and ephemerality. Although the inferences regarding the factors "Ambiguity" and "Ephemerality" vis-a-vis job status are unreliable due to both sample selection and disproportionality (10 managers vs. 69 non-managers), the suggestion that managers might exhibit a literate bias on these two factors makes sense. One would anticipate that managers, as a group, would tend to exercise particular caution in their communications to ensure clarity. Similarly, managers might be expected to be especially cognizant of the fact that, although e-mail messages may often be quite spontaneous, they

Table 8
Microanalysis of Selected Categorized Means

Group	Factor	Category	Mean	S.D.
#1	Feedback	Native Language		
		English (76)	4.88	.84
#1	Formality	Sex		
		Male (57)	3.39	.84
#2	Feedback	Female (33)	3.96	.79
		Sex		
#2	Feedback	Male (48)	4.52	1.07
		Female (31)	5.07	.78
#2	Feedback	Logon Frequency		
		≤3 times a day (28)	4.36	1.06
#2	Ambiguity	≥4 times a day (51)	4.95	.91
		Job Status		
#2	Ephemerality	Manager (10)	2.43	.69
		Non-Manager (69)	3.16	.95
#2	Ephemerality	Job Status		
		Manager (10)	3.13	.68
#2	Ephemerality	Non-Manager (67)	3.78	.86

can nonetheless exist in computer archives almost indefinitely, and can resurface at the most inopportune moment.

Analysis of Responses by Question

An analysis of the responses to the survey by question is represented in Tables 9 and 10. Table 9 shows the results for questions #1-5, and is taken as an indication of the general strength of the oral/literate stereotypes. Table 10 shows the overall tendencies in oral/literate bias for both groups. The

Table 9
General Strength of Oral/Literate Stereotypes

Question	Factor	Mean	Median	S.D.
<u>Group #1</u>				
#1 (91)	Feedback	4.50	5.00	1.39
#2 (92)	Planning	5.28	6.00	.987
#3 (92)	Formality	4.94	5.00	1.08
#4 (92)	Ambiguity	4.05	4.00	1.52
#5 (91)	Ephemerality	5.12	5.00	1.02
<u>Group #2</u>				
#1 (79)	Feedback	4.49	5.00	1.41
#2 (79)	Planning	5.39	6.00	.687
#3 (79)	Formality	5.03	5.00	.847
#4 (79)	Ambiguity	3.61	4.00	1.39
#5 (78)	Ephemerality	4.97	5.00	1.20

histograms generated for all 25 questions provide a graphical supplement to this discussion; they are included as Appendix H.

Oral/literate stereotypes. As noted in Appendix G, a response of 4, 5, or 6 is taken as agreement with the oral/literate stereotypes represented by questions #1-5. These questions were as follows:

#1: A spoken message will normally receive a quicker response than a written message (Mean = 4.50).

The "spoken message" referred to in this question was intended to include any spoken communication, including spontaneous face-to-face

conversations. However, some respondents noted in their comments that they assumed "voice mail" (e.g., telephone answering machines) to be the intended definition of the term, and they answered accordingly. Even with this misinterpretation, however, the stereotype appears to hold true.

#2: Written messages are usually more carefully planned than spoken messages (Mean = 5.28).

Agreement with this stereotype was the strongest of all five questions in this section of the survey. The finding becomes very interesting when one compares the planning that people say they do before sending an e-mail message with many of the e-mail message samples contained in Appendices A and D.

#3: Writing tends to be more formal than speaking (Mean = 4.94).

#4.: A written message is typically less ambiguous than a spoken message (Mean = 4.05).

This stereotype was the least strongly held. Most likely the presence of nonverbal cues in spoken messages is considered to significantly reduce ambiguity, thus pushing this mean toward the oral/literate midpoint. With a mean score of 4.05, however, the stereotype is still considered to stand.

#5: Spoken messages tend to have a shorter life span than written messages (Mean = 5.12).

This stereotype appears to be relatively strongly held. As noted earlier, however, the perception of ephemerality appears to depend to some extent on whether the respondent is the sender or the receiver of the message.

On the basis of the above results, it appears that Research Question #1: "Do e-mail users tend to hold stereotypes of speaking and writing in the areas

of feedback, planning, formality, ambiguity, and ephemerality?" may be answered in the affirmative.

Oral/literate bias. Table 10 provides an indication of overall oral/literate bias by factor. In general, these results support the tentative conclusions drawn earlier in this chapter. "Feedback" emerges as having a strong and consistent tendency toward the speaking end of the scale. "Planning" tends toward the writing end, as does "Ambiguity." "Formality" appears to lean toward an oral bias; however, for reasons noted earlier, little credence is accorded to this finding. "Ephemerality," which gravitates slightly toward an oral bias when regarded as a whole, reveals an interesting dichotomy when viewed from the perspective of first vs. third person.

Research Question #2: "If the answer to #1 is 'yes,' do these stereotypes tend to result in any oral/literate bias in e-mail users' perception of e-mail communication?" may therefore also be tentatively answered in the affirmative.

Table 10
Overall Tendencies in Oral/Literate Bias

Question	Factor	Mean	Median	S.D.
<u>Group #1</u>				
#8 (91)	Feedback	4.92	5.00	1.07
#12 (90)	Feedback	4.66	5.00	1.33
#13 (92)	Feedback	5.41	6.00	1.13
#18 (91)	Feedback	4.20	4.00	1.42
#7 (92)	Planning	3.02	3.00	1.22
#15 (92)	Planning	1.80	1.00	1.14
#19 (#92)	Planning	2.05	2.00	1.18
#11 (91)	Formality	3.86	4.00	1.28
#16 (92)	Formality	3.07	3.00	1.32
#22 (92)	Formality	3.94	4.00	1.33
#9 (92)	Ambiguity	2.79	3.00	1.31
#14 (91)	Ambiguity	2.62	2.00	1.42
#17 (88)	Ambiguity	3.47	4.00	1.42
#10 (91)	Ephemerality	3.65	4.00	1.48
#20 (89)	Ephemerality	2.78	3.00	1.61
#23 (91)	Ephemerality	3.78	4.00	1.58
#25 (85)	Ephemerality	4.13	4.00	1.58

Table 10 (continued)
Overall Tendencies in Oral/Literate Bias

Question	Factor	Mean	Median	S.D.
<u>Group #2</u>				
#8 (79)	Feedback	4.80	5.00	1.08
#12 (79)	Feedback	4.61	5.00	1.42
#13 (79)	Feedback	5.01	5.00	1.34
#18 (79)	Feedback	4.53	5.00	1.32
#7 (79)	Planning	3.25	3.00	1.16
#15 (79)	Planning	2.10	2.00	1.16
#19 (#79)	Planning	2.42	2.00	1.23
#11 (78)	Formality	3.86	4.00	1.28
#16 (78)	Formality	3.35	3.00	1.22
#22 (79)	Formality	3.96	4.00	1.32
#9 (79)	Ambiguity	2.79	3.00	1.20
#14 (79)	Ambiguity	2.73	3.00	1.39
#17 (79)	Ambiguity	3.67	4.00	1.45
#10 (79)	Ephemerality	3.19	3.00	1.29
#20 (79)	Ephemerality	3.09	3.00	1.69
#23 (78)	Ephemerality	4.27	5.00	1.26
#25 (78)	Ephemerality	4.21	4.00	1.51

Chapter 5

Discussion and Recommendations

Discussion

Electronic mail is a communication medium whose time has come. In today's fast-paced and increasingly global business environment, workers must embrace any means at their disposal that will enable them to squeeze more productivity out of the day. E-mail, because of its speed, asynchronous character, and broadcast capability, will doubtless play an ever larger role in international corporate communications.

The medium is not without problems. The ambiguities inherent in human language can cause particular difficulties in e-mail communication, to the extent that composing at the keyboard results in less careful planning and review of messages. People may be remiss about checking their electronic mail regularly; messages are sometimes ignored. The intended meaning of an e-mail message can be distorted because the medium is not equipped to handle nonverbal cues. And the perceived anonymity that electronic mail provides, while largely illusory, nevertheless seems to tap the suppressed hostilities of some users, turning them into rabid "flamers." The misperception that such messages are transitory, or are somehow safe from the eyes of people not directly involved in the "conversation," may add kindling to the flames.

Various hypotheses have been put forward to explain the basis of one or another of these electronic mail problems, but a review of the literature did not reveal any unifying factor. The present paper, which proposed that e-mail users' speaking and writing stereotypes might have generalized effects on their interaction with the medium, may therefore be unique in this regard.

At the outset of the project, the researcher anticipated that each individual subject would exhibit a consistent bias toward one or the other end of the oral/literate continuum. That is to say, Subject A would tend to view e-mail in terms of a spoken medium across all factors investigated, and would base his or her behavior and expectations on this bias; and Subject B would demonstrate just as consistent a bias in the literate direction.

What emerged from the data, however, was at least a hint that oral/literate stereotypes not only play a part in the realm of electronic mail, but seem to vary by factor. And for each factor investigated, the wide range of responses observed suggests that different users may hold opposing perceptions concerning the medium. The subtle confrontation between oral and literate attitudes may underlie all of the problems encountered in electronic mail usage to some extent.

These findings are preliminary. Considerable fine-tuning of the survey instrument, the research questions, and the data analysis would be required before any truly credible assertions could be made. The variance that occurs as a result of viewpoint (first vs. third person), the effect of desirable social norms on questionnaire responses, and the evolving applications of this new communication technology are only a few of the factors that should be addressed in more detail.

Recommendations for Future Research

The research described in this paper was a preliminary sortie into the investigation of the relationship between e-mail users' oral/literate stereotypes and their perception of electronic mail. A natural follow-on project would focus on more specific identification of problems associated with this communication medium, and the extent to which such problems could be linked with users' oral/literate stereotypes.

The suspected impact of "proper" manners on the validity of questionnaire responses was noted earlier. A possible remedy for this confound might be to record and analyze actual transactions, since self-reporting in such areas may inevitably be tinged with bias.

Another area of potential interest would be the effect of language and cultural variables on the oral/literate stereotypes of e-mail users, and the concomitant differences in the types of problems experienced in using this communication medium.

Attention to the particular purpose for which given e-mail communications are used would doubtless provide more valid data than those forming the basis of the present paper. In the Tandem scheme of things, for instance, a study based exclusively on first class mail messages might well lead to different conclusions than a study that focused on third class mail. The researcher's speculation is that a tendency toward a literate bias would be more evident in the former case, and the opposite tendency in the latter.

Finally, it would perhaps be instructive to revise the questionnaire used in this study by wording half of the "e-mail" questions in the first person (i.e., "I"), and the balance in the third person (i.e., "other people"). It is possible that people's oral/literate biases and related perceptions of proper

e-mail etiquette might vary depending on whether they themselves, or other individuals, are under discussion. An example of this "point-of-view" shift was observed in the present research in the variant answers to questions #20 and #25 concerning the ephemerality of critical e-mail messages. It was common for the same subject to report saving critical e-mail messages that he or she received, while simultaneously expecting others to treat critical e-mail messages that he or she sent in a completely different manner.

* * *

The researcher will not make bold to claim any findings of an absolute nature with regard to the impact of users' oral/literate stereotypes on electronic mail communication. However, the tantalizing suggestion that such stereotypes may provide some universal clue to the problems that trouble this infant technology cannot be entirely dismissed. To the extent that this project may open the way to further scouting in what seems to be a relatively virgin landscape, it seems to have been a worthwhile endeavor.

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Appendix A
Facetious E-Mail Message and Responses

November 2, 1990

My faith in human nature is intact, for the most part. Incredibly, a number of people actually took me seriously. I guess self-righteousness has no sense of humor.....too bad. BUT, the good news is that most folks who took the time to reply DO have a sense of humor...that's good! At least, they share MY sense of humor.....that's sick!

The original 3rd class message:

ANIMALS TASTE GOOD

If it's OK to kill animals for food, it's OK to kill animals. Period!
If it's OK to kill them, shouldn't we use everything we can? Why throw away that lovely pelt when we can get good money for it?
Why shouldn't we wear those pelts? Whether it's for warmth or not, what's the difference? The damn thing's dead anyway.
Why throw away those hooves when we can make glue?
Why throw away those bones when we can make fertilizer?

Would an animal in the wild hesitate to kill you? Hell no!
Why give them more of a chance than they would give you?

If we killed more animals, the price of meat would drop!

Kill 'em.....Eat 'em.....wear 'em.....experiment on 'em... That's what they're for, for God's sake!
We're at the top of the food chain.....let's act like it!

Where would this country be without McDonalds, Burger King, Kentucky Fried Chicken, Revlon? We'd be up to our ears in pimply-faced teen-agers, that's where! Dead animals give them work and clear up their skin.

Anesthetize them first if that will salve your conscience. Except cats, of course.

I love animals, especially when properly cooked. Except cats. Cats don't even taste good.

But turnips! Now there's a sad tale. Did you ever see a farmer pick a turnip? He grabs that poor thing by the tender greens and YANKS it out of the ground, TWISTING and WRENCHING and BREAKING the delicate feeder roots until the poor turnip just lays there, exhausted and spent. If that isn't humiliation enough, the poor turnip is then made to lie naked among its peers in the super-market produce section until some EVIL person pokes and prods and finally takes it home to meet its fate. It is scrubbed

unmercifully, its remaining roots CUT from its body. It is SKINNED and dumped unceremoniously into a cauldron of BOILING WATER, to meet its destiny: IT IS EATEN!

But then, I don't care....turnips taste good, too!

The replies, in loose chronological order:

OH BOY OH BOY OH BOY.....

Kinda into getting hate mail, eh? Do be sure to save the "goodies" to share with your friends and pals....
What a treat!

Michael,

You may never survive the outpouring of wrath coming your way. Incredibly, a lot of people won't see this as an attempt (albeit, a weak one) at humor. GIRD YOUR LOINS!!!

Greetings - I presume you have received some SCATHING replies to this one !!

Hope your terminal is not on fire.

It seems that the obvious solution to London's rat problem is to feed them to Mike. After all, they are definitely animals, "taste good" and certainly not cats.

Although I agree with most of your sentiments, why did you have to spoil things by saying you liked turnips??? anyone who can eat them can have no taste at all!!!! They are though very good for feeding to cattle etc so ultimately they help boost the food chain.

Regards from down under, where we have more animals, sheep, cattle, Kangaroos etc than we have people to eat them.

I've eaten a cat... it was much like chicken. In fact, many were sold AS chicken in England toward the end of WWII.

The occasional report still turns up about a chinese restaurant selling them as chicken even now. I ate my cat in China, where it is considered a delicacy. Not a cat really, they prefer kittens (though getting the meat off the bones is something of a challenge).

Guinea Pig tastes good too. The only animal I didn't enjoy eating was a camel. Horse is OK - very popular in France until recently, when various diseases were found in the meat.

Try eating your cat - you'll find it a worthwhile experience. In fact, I reckon its the ONLY thing worth doing with a cat.

I hope, well I sincerly hope that your message was a piss take. If that is so then it was midly amusing, sort of as funny as Bob Hope when he can't find his queue card. If it was not meant to be funny then I pity you.

ps Please name me the animal that would rather kill than run away.

Cheers! Mike

You've said it.
I have yet to hear someone complain about the evil done to mankind. Especially children.
Please don't get me wrong I love animals (most of them), I am sure you too wouldn't agree to poachers, who kill animals just for their tusks, horns etc. Or animals killed as a sport.

Where would America be without...
McDonalds, Burger King, etc?

In jeans two sizes smaller, that's where!

I have a definite feeling your INBOX will be filled with NASTYGRAMS for the next month !!!!! I have heard the TURNIP story before, only it was done for carrots.

My wife has 2 hairbags (ie cats) that I would rather run over with my truck than see. However, it beats sleeping alone !!!

If you are ever in Penna, look me up and we can go out and
inflict pain on avians and mammals in the woods,

OUTSTANDING!!!!

Your sick! That's all I have to say for now.

Did you just send this message to piss people off. Why?

This may be a joke to you, but you have definitely ruined my
day.

Oh Mikey.....

How can you say such things about nice little felines? It'
not nice to be mean to kitties! But, I do like the rest of
your message!

tee hee tee hee.

Well said!

hey pal,
why don't you come to florida for vacation this
winter?? i've got something here for ya.

COULDN'T HAVE SAID IT BETTER MYSELF!

That was good for a laugh!

You are a very sick person Mike. I like you already!!!!

Beets, unfortunately, also suffer the same fate as turnips.
That too should be widely discussed. I do prefer the color
of beets to turnips though.

SUBJECT: Not another damn liberal turnip-lover! N/T

You are really off balance aren't you?

My perspective:

- 1- We ARE up to our ears in pimply-faced teenagers.
 - 2- Cats DO taste good. At least they did when I was in the Fur East.
 - 3- Turnips taste like shit.
 - 4- Shit does NOT taste good. At least it didn't the last time I ate a turnip.
-

You pervert!!!

How can I possibly trust the word of anyone who actually thinks that turnips taste GOOD!!!

All I can say is your lucky that you don't have more hair on that tough skin of yours, or you might end up drapped around some floozy's body.

On second thought, ...
Never mind.

I'd love to see all the hate mail you got for this. I printed out your message and stuck it on the wall for all the "sensitive" people around here to see.

Honestly, do you really thaink that Bambi, Flower or Thumper would chow down on any of us?

Especially after we've eaten all that "MEAT"?

Bill Beet

P.S. Meat is dead, but lettuce is forever.

That's right. But we should create a FAIR world. And after we finish that, let's dream up another concept and forge ourselves to it. Let's have an....EASY world, yeah, that would be nice. Then, how about a PURPLE world? Everyone MUST paint everything purple. To hell with the easily observable fact that 'fair' and 'easy' and 'purple' are inventions with nothing to do with the way the world actually works. Besides, turnips are kind of purplish,

right?

You gwan need a response file, Mikey. Lemme know the name.

I think cats CAN taste good, its merely a matter of proper preparation, some good sauce, and remembering to remove the fur and claws beforehand.

Yay! Mike...

I couldn't've said it any better; especially th' part about us bein' at the TOP of the food chain!

The Good Lord GAVE us "dominion" over these lower creatures. That means we should DO WHAT HE TOLD US! To some, it looks like an excuse to go out and "deplete our (God-given) resources", but the way I see it, HE's up there watchin', and HE will decide just how far we'll run it down, anyway.

Thanks for puttin' it so well, though.

SUBJECT: COULDN'T HAVE SAID IT BETTER- THANKS MIKE!

Mike,

Although I don't know you, you third class msg. certainly made my day. This week a 8 point buck killed a man who was picking up aluminium cans on the side of the road. Three men approached the grissly scene, and the Deer was standing over his prey and would not leave. The men exerised their God given right and shot the buck.

In Texas it is deer season.

We need more people with a sense of humor in Tandem at this time.

Pat

Hey Mike,

I know you'll probably get a lot a flack for this (especially the part about cats -- you just can't get away with degradng those critters).

Anyway, I thought your piece was extremely amusing (especially the part about cats) and wanted to thank you for sharing it. I've often told vegetarians a similar tale about the poor fate of vegetables (hey - they can't even run away from the farmer!).

I remember the comedian Dave Brenner talking about some vegetarian who dies, goes to heaven, meets God who says: "Hey, what's the matter with you not eating any animals? What'd ya think I put them down there for anyway? Just to go poo-poo in the woods?"

This is incredibly 'Well Done', i didn't realize that anyone had the capability of providing an example of such vibrant stupidity, crassness, and insensitivity all at one sitting. There should be an award or something, oh yea, i guess that was already given out the the guys in the 1800's who loved to hunt Buffalo, and Native Americans. Please note that the winner is not always the best, there are times i'd choose to stand with the losers.

Hi, Mike!

This was great reading. Very cynical and humorous! But, boy have you left yourself wide open for either hate mail or another mail war. Have you gotten any hate mail, yet?

I'm getting very tired of people constantly telling me about how I should give up meat: 1.) because it's bad for you 2.) because it causes cancer 3.) because they suffer when they are killed 4.) be- cause I'll go to hell if I don't give it up.

Thanks for the laugh you've provided, very much needed - especially today.

SUBJECT: ANIMALS TASTE GOOD!-Bravo!!!(NT)

You are one sick sucker..

Clever!

I'd be curious to read your replies!

THIS IS FROM MY GIRLFRIEND, SHE SAYS TO "F" YOURSELF. WE DO AGREE ON CATS BUT NOT TURNIPS!

Reveling in my new turnip- and carrot-skin jacket, I just have to say thanks for the funny essay!

Mike,

I couldn't stop laughing when I read your message. The dour, serious tone of previous messages was getting depressing, but then along came your reply to light up my morning. Thanks for the chuckles! (except about cats: I like cats).

You are one sick person... How could anyone even think of eating a Turnip?

YUCK!

SUBJECT: atta boy mike U tell em (NT)

Mike:

A truely wonderful response to an absurd controversy!

SUBJECT: Violating antelope rights is no excuse for eating

Mike -

You left out putting the animal heads on the antennas of our cars as status symbols; the more rare the beast, the higher the status. Society-conscious weenies driving their Mercedes' would have little spotted owl heads, while the urban blue-collar worker would get by with the head of their neighbor's dog, for instance. Me, I'll just put a Tandelope on mine. Say, since humans are animals, too, is it okay to kill them? Can I start with you and your family, or do I have to use the rule of closest proximity? Just wondering,

SUBJECT: WRONG: TURNIPS SUCK! (n/t)

Boy are you going to get HELL NOW!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!

Now that this has been forwarded to the Catsig!!!!!! And, as you know, we cat people get real ugly when our little furlpersons get insulted!

Take cover! The fur will fly!

Hi Folks,

I'm forwarding this, just in case you missed it on 3rd class. As I started reading it, I wasn't sure if it was for real. If someone tried to parody this guy's attitude, he couldn't have done a better job of it. But read it for yourself.

Just think of all those dogs and cats going to waste in the animal shelters.

yum yum,

EVERYONE,

I found this in third class, and thought you might appreciate it. The previous forward was sent through the dog-sig.

Actually, early trappers in the western US thought that cat in its various forms was high on the list of edible meats. I would think that cat would be better than possum...

MIke!!!

Hi there ! This is a joke, right??!!@@@#.

I'll bet you could make a reply file with all the replies you get on this one. I seldom read 3rd class, so I would have been spared reading this. I could have lived without reading it. I just assoon not know people like this are around. (Hide my head in the sand?) But, we are all entitled to our opinions; I just don't agree or like Mr. -----'s.

Thanks for nothing.

Mike,

Looks like your message got forwarded to the various pet SIGs. I bet by this time tomorrow your Inbox will

be full of comments about how awful and thoughtless you are! Of course, the comments are from people who think it's better to do medical experiments on horrible yucky human inmates, instead of cute adorable animals.

I thought it was great! (those poor little Turnips!)

I'm sure you'll get all kinds of crap for this one, but if it helps, you made me laugh today.

SUBJECT: Ahh! Specieism in it's truest form!

Do you realize that you are rude, crude and disgusting animal yourself. Ever wonder how you would taste? And as for that poor little turnip: The stupid thing doesn't have feelings!!!!!! Whereas a cat does. Can turnips give you love. If you can get love from a turnip, you are one sick and demented person!!! Animals give people a shoulder to cry on, they are there when you need them. We have plenty of other things to eat than horses, dogs, cats, etc. I eat beef and chicken, turkey, and pork, but it has always been that they were raised for that sole purpose.

SUBJECT: IF ONLY THAT TURNIP WAS YOU. n/t

Mike, That was great reading for me and at just the right time of day.

Mike,

I'd be willing to bet you'll get some interesting replies to this message. Would you be willing to save all of them for me? I'm presently doing my thesis on electronic mail, and one of the main areas I'm looking at is how people tend to misinterpret mail messages.

I'm assuming that there was at least a hint of humor in your message, but please correct me if you were 100% serious. (I'd like the replies in either case.)

YOU'RE A SICK INDIVIDUAL !!!!!!!!!!!!!!!!!!!!!!!

 excellent continuation of a truly marvelous comment by Mike. I would have only one question, where do you get the SUGAR????? Think of all the poor unsuspecting beets and cane that must be destroyed !!!!!

The bottom line is that MANKIND CANNOT EXIST without 'utilizing' both plants and animals.

SUBJECT: 3:THIS TASTES GOOD TOO.!!!

Mike Reedy's ANIMALS TASTE GOOD has shed new light to my world! Mike's gut wrenching description of a turnips demise has left me both horrified and angry. I realize now I have been living in a society which relishes (no pun intended) and glorifies cruelty to vegetables. Every fall thousands of farmers across North America participate in a holocaust of unimaginable proportions known as the HARVEST! Untold billions of unsuspecting innocent vegetables are uprooted from their homes dumped into trucks and shipped to grocery stores across the continent. Not a peep of protest is heard about this cruelty! That will soon change! I have decided to organize a new protest group along the likes of Greenpeace. PEOPLE FOR VEGETABLES!! This grassroots organization will soon plan protests marches along the back roads of North America. During the fall harvest we will include subversive guerilla tactics against farmers, the perpetuators of this cruelty. Farmers will awaken in the morning to find spikes in the tires of their tractors and sugar in the fuel tanks! I plead to all concerned Tandemites to take up the cause and recruit friends and family. We can start with protests at grocery stores, possibly even spray painting vegetables rendering them inedible as they lie helpless on the cold shelves of the store!

Many of you are probably wondering what are we to eat? If we are to eliminate cruelty to animals and vegetables the solution becomes obvious. We must return to what our ancestors knew so well, CANNIBALISM! Yes its true, PEOPLE TASTE GOOD! When prepared properly that is. That is the begining of my latest endeavor intended to serve Humankind. TO SERVE MAN will be my new recipy book which will bring new meaning when serving friends for dinner! It will contain all the latest in Haute-couture for microwave, convection, and regular ovens.

Now when your friends don't show up for work.....

Brave man Mike
I'd love to see the reply file!!
In agreement

Uuhhh...folks.....Helloooooo?.....

It IS a parody.

To think otherwise would be literary lunacy.

It is a Farce.

A hoax.

And written with such a broad brush, I am sure that the author never dreamed he would be taken seriously.

It is just an answer to the self-righteous that proclaim that they will "never use leather, etc, because of the poor animals."

But that puts them at odds with others who fancy themselves "ecologists". Because now you use vinyl which is not biodegradable, can emit noxious and possibly toxic fumes in a landfill, uses too much energy to produce, etc, etc.

It is intended to show that well meaning special interest groups can be diametrically opposed to other well meaning special interest groups.

And both may be right. "Right" being very difficult to define. My 2 centavos.

Mike,

The roast lamb tradition is alive and well at Tandem -- some people just have no sense of humor.

As a former vegetarian who gave away a suede jacket that I still wish I had, your attitude has my support. It is just harder to hear a turnip scream.

OK you people who think it is so cruel to kill animals, plants, and fish, have you ever considered how many millions of plants and animals you either:

- 1) kill yourselves, or
- 2) pay to have killed for you.

Even if you don't intentionally eat animals, fish, or plants (I guess you eat granite or limestone), you still drink water. It may come as a shock to you, but little animals and plants live in drinking water. If your water has chlorine added to it, you are paying your water company to asphyxiate these poor little creatures for you. Pretty

cruel to poison those poor little critters isn't it? If your water is untreated, you are dumping these poor little creatures into a vat of hot hydrochloric acid (your stomach) which also sounds pretty cruel, doesn't it?

What do you folks do for water if you don't want to be cruel to the plants and animals?

I like water critters, and I suppose I am a little sadistical, because I really like spring water (fresh live critters dumped into a vat of hot acid). Makes my mouth water just thinking about it.

Love those critters, except cats,

This compassion for animals and vegetables has only shown your complete disregard for the fish that are so creully slaughtered for sport and appetite satisfaction of some uncaring fool.

Imagine yourself being dragged out of your envrionment with a sharp hook stuck in your mouth. Only to have this same hook ripped unmercifully out of your lips, then to be thrown aside to die of suffication while writhing in pain. Or how humane is it to take a lobster and throw it into a pot of boiling water. Have you ever heard the cry that erupts from a lobster in the last few seconds of its life when this is done, it is sad indeed. What about those pathetic folks who enjoy thrusting a knife into the shell of a clam or a oyster forcing it open breaking the spine of the shell and then cutting its tissue away from the shell. If this wasn't cruel enough while this poor muscle is still alive the next barbaric act is to put something like tobassco sause on the wounds and then eat the suffering thing alive.

I think this whole situation stinks.

I am fully aware that Mike is using cynicism to express peoples attitudes. Of course I disagree with Mike but if I had taken that seriously I would have said alot more. It's too bad that my little "one-liner" had to be taken so seriously and that something like this would start a mail war. I'm sure when Mike sent his message he knew there would be a few replies to follow. I only thought that someone who is able to send a message like Mike's could handle a little cynicism in return! So I don't know if there is anyone out there with a sense of humour. However I do feel that there's alot more people out there who would rather read my one-liner than some big long argument that should be directed only to him.

People, is there nobody out there who has a sense of humour? It may not need to be as twisted as Mike's, but it seems that nobody has even thought of the possibility that Mike is using cynicism to hammer home his own criticism of other people's attitudes. I don't know if this is the case; it just distresses me that anybody can take this sort of thing that seriously. In any case, I think it's time to stop: this is showing all the signs of an incipient mail war, and nobody wants that. The mail police (sorry, mail monitors) are getting very serious about this sort of thing. It's not Mike's message they're worried about, it's the nasty replies. If you disagree with Mike, please send HIM a message and don't copy the distribution lists.

YOU ARE ONE OF A KIND, I MUST SAY.
 ANIMALS WOULDN'T ATTACK YOU IN THE WOODS
 OR ANYWHERE ELSE FOR THAT MATTER, IF YOU
 WOULD JUST STAY OUT OF THERE TERRITORY.
 YOU ARE VERY INCONSIDERATE AND UNCARING
 TO THE BEAUTIFUL THINGS IN LIFE.

"ANIMALS ARE PEOPLE TOO"

MOTHER NATURE MADE US WHOLE
 THERE'S A STORY IN NATURE,
 THAT MUST BE TOLD:
 ANIMALS MUST NOT BE EATEN OR SOLD!

THEY MUST BE TREATED IN A RIGHTFUL WAY.
 FOR THE GLORY OF LIFE WE HOLD IN OUR HANDS,
 LIKE THE WINTER LEAVES AND THE PURITY OF THE
 OCEAN SAND.

SO DON'T BE A FOOL AND GET IN NATURES WAY
 OR THE BEAUTY IN LIFE WILL VANISH ONE DAY.

okay, I get it.....

joke, joke. And the joke's on me and those that took such silliness serious. My gawd, how stupid I am AND serious. I really need to chill out fer sure.

Dear Mike,

I don't doubt it for a moment you're greatly pleased with yourself and convinced that you're uproariously funny. I don't know how to tell you without appearing uncharitable that I can't share your flattering opinion of yourself. My reaction to the fruits of your brainstorm was an acute case of embarrassment. Imagine a badly crippled person undress in public to display his deformed body, twisted hands and misshapen legs. To witness a deformed mind make a public spectacle of itself is even more painful.

If I were a deeply religious person, I would pray daily to God to make you whole and to invest you with a modicum of sensitivity and moral sense without which a man is nothing more than a humanoid. I would also pray to God to keep you alive, despite of your heavily carnivorous diet which predisposes you to heart disease, stroke and cancer, until such mercies can be bestowed upon you.

ompassionately,

Concerned Human

SUBJECT: ANIMALS TASTE GOOD! - very funny and somewhat
truthful -thanx-

Appendix B
Rules for Electronic Mail Etiquette

Rules for Electronic Mail Etiquette

In sending messages

- Create single-subject messages whenever possible
- Assume that any message you send is permanent
- Have in mind a model of your intended audience
- Keep the list of recipients and Cc:s to a minimum
- Separate opinion from non-opinion, and clearly label each
- If you must express emotion in a message, clearly label it
- Other content labels are useful
- Think about the level of formality you put in a message
- Identify yourself and your affiliations clearly
- Be selective in broadcasts for information
- Do not insult or criticize third parties without giving them a chance to respond

In receiving and responding to messages

- If you receive a message intended for another person, don't just ignore it
- Avoid responding while emotional
- If a message generates emotions, look again
- Assume the honesty and competence of the sender
- Try to separate opinion from non-opinion while reading a message, so you can respond appropriately
- Consider whom you should respond to
- Consider alternative media
- Avoid irrelevancies

(Source: Shapiro & Anderson, 1985, p. vi.)

Appendix C

The Risks of Electronic Mail

Tom Van Vleck - 16 Jun 87

If you're tempted to

- broadcast a funny message
- send angry mail
- send mail late at night
- send a message about a person that you wouldn't want them to see

PLEASE think twice. Ask somebody else to talk you out of it.

It's easy to damage your reputation and productivity by saying the wrong thing, and it's ten times as easy to do this with electronic mail.

JOKES: What seems hilarious when you type it in may offend others. And somehow, people are more offended by such jokes when they come through the electronic mail than they would be by the same joke told face to face. Also, people misunderstand mail messages, because tone of voice doesn't come along with the message; and when they misunderstand, they get mad. My rule is

COMPUTERS AND HUMOR HAVE NOTHING TO DO WITH EACH OTHER

After all, what joke can be repeated a million times a second and stay funny for long?

ANGER: If you're upset with somebody, talk to them in person. Your angry message is likely to make the problem, whatever it is, worse. Because mail readers often react quickly to mail, without reading it carefully, each emotional message causes more and stronger emotion in the receiver. Sending a mail message is a lot more permanent than saying something; long after your feelings change, the words are still there. Unlike paper memos, electronic mail is hard to stop once you've sent it: it's gone in microseconds.

BROADCASTS IN GENERAL: If you're mad at the company, and really want to hurt it, don't send a broadcast message; just kick in the monitor on your terminal. It costs about as much, and the advantage of wrecking your terminal is that fewer people will know about it, and the consequences won't go on as long. If you're not mad at the company, weigh the cost of company resources your broadcast will consume against the possible benefit of this broadcast.

LATE NIGHTS: Be especially careful about messages you compose late at night. Some mysterious influence seems to start operating after a certain hour, 9PM or so, which makes us think we're typing in sensible messages, when in fact they are subject to severe misunderstanding. "Oh, not ME," you say. Well, even so, could the message wait? If it can,

my advice is to save it in a file and look at it tomorrow morning. Chances are you'll want to make some changes to make it more clear & more polite.

PERSONAL REMARKS: Making derogatory remarks about others is a BAD IDEA. Doing it behind their back is worse. Doing it in public is worse still. And doing it in a way that suppresses the human side of the communication, the smile or "just kidding" shrug you might have included face to face, makes it even worse. Electronic mail is the last place for any kind of uncomplimentary remark. Messages are awfully easy to forward -- you can't be sure who will read them eventually and form a negative impression of you for sending them. There are even stories where a mail user hit REPLY instead of FORWARD and accidentally sent a nasty crack about someone to that person. Just don't do it.

TANDEM SPECIFIC INFO: If you insist on sending a broadcast, make sure you use the correct mail class. Read the mail policy.

Never count on CANCEL working; in particular, you can't cancel a second or third class message, because the agent at the far end files it as soon as it gets there. When you try to cancel it, each recipient gets a FIRST CLASS message that says you tried to cancel it, with the original attached, and you get 500 first class messages that say you tried to cancel after it was read.

(So the worst thing you can do is to broadcast a racist or sexist joke that isn't funny, in the wrong mail class; and then try to cancel it. People actually do this.)

Appendix D
Excerpts from Responses to Informal Polls

At the outset of this project, the researcher conducted a "fishing expedition" by means of two third class mail messages. The first message was sent on May 28, 1990; the second was sent on August 13, 1990. The comments received in response to these two queries were largely responsible for the ultimate focus of the present research.

The two messages, along with a sampling of the responses that each elicited, are shown on the following pages. The responses have been reproduced faithfully; no attempt was made to correct typographical mistakes or errors in spelling, syntax, or grammar.

Message #1

Hello Tandem,

I will be writing my M.A. thesis on the subject of electronic mail and its influence on human interaction patterns. I suspect that e-mail has both positive and negative influences. For people who are shy about phone or face-to-face interaction, it may make it easier for them to communicate with others. Conversely, it may foster the "cocooning" syndrome in which people tend to isolate themselves more and more from personal interaction with others.

What do you think about e-mail? I would like to hear from anyone with opinions on this subject. If you respond to this message, please let me know also whether you'd be willing to complete a questionnaire regarding e-mail later this summer (it's not developed yet).

Finally, if there are people in your office who may not have seen this third-class message, I'd really appreciate it if you would pass the message around. The success of my project will depend on receiving a lot of feedback from people who use electronic mail regularly.

Thanks for your help! Gail Garabedian

Selected Excerpts from Responses to Message #1

"The other quirk of mail that I have noticed, which has also happened in this message, is the tendency for correspondents to be especially flippant and casual in their messages..."

"...I think e-mail is essential if we are ever to break out of the gotta-be-at-the-desk-from-9-to-5 syndrome."

"...e-mail gives one time to research an answer or response, without simply dismissing something as out of your immediate realm of knowledge."

"Where else can you get all kinds of opinions and advice so readily. What a resource to draw information from!"

"It's great! I like coming to work and checking in with the world. Am not at all shy, and enjoy meeting people in person - this is just an extra window to

people, places, and ideas that I might not otherwise get the opportunity to know."

"I agree about the cocooning effect, as that is how I use it if I feel that someone is difficult to talk with. I also believe I sometimes use it to 'create an audit trail'... It is very useful, however, to leave messages so that I don't interrupt someone's work and so that my query is clear to the other party."

"I think that e-mail makes possible the quick resolution of problems between people who would otherwise play "phone tag" for weeks."

"I have personally used second class for hardware problems and have always received good response. ... The use of third class and SIGs could be seen as an employee benefit. ... Most of us check and edit our messages before sending to ensure that they make sense."

"I don't think it makes people stay isolated at all, but instead connects them to people that they otherwise would not reach."

"...mail is a catalyst to communications in the sense that having the medium available engenders conversations which could not otherwise take place. ... But I'm also of the belief that our leaders here at Tandem have reached thier positions by understanding (and using) the value of face to face or real-time (phone) inter-personal communication."

"...E-mail has made it possible for people with arcane interests or peculiar personalities to form a community for the first time -- these people are poorly served by mass media and academic journals."

"...people can forward your message to others without you knowing..."

"I find that reading and sending E-mail keeps me sitting at my terminal more than I like."

"I find e-mail much more efficient, specifically since I hate talking on the phone and this eliminates phone interruptions. ... The down side of this is that more and more I find many people simply do not read their e-mail."

"I believe that it contributes substantially to productivity."

"I've broadcast a few 3rd class messages in my day, and have gotten some amazing replies. I feel that the 'impersonalness' of the electronic medium allows, and even encourages people to express in ways they would never express face to face."

"Surely it does tend to isolate people from personal contact, but I have also been involved in several conversations where the participants probably wouldn't have gotten involved in without that additional degree of anonymity that E-mail gives them. I too find that I formulate my ideas better in writing anyway, so I'll often do things that could be handled with face-to-face conversation over E-mail for that reason."

"It is a very easy method for meeting people within your own company who share interests in common with you."

"As a secretary, I wonder how I ever managed without it. It boggles my mind. Imagine setting up all these meetings with just a silly telephone."

"An area of interest to me with E-Mail is the lack of non-verbal expression which tends to cause people to only react to exactly the written word without an understanding of the tone or intent."

"It can be a fantastic tool to add to one's arsenal of communications capabilities, or it can be a great way of hiding from direct personal interaction with others."

"I would like to participate and would be willing to fill out a questionnaire. However, your survey will be seriously flawed because it will be biased by people like me who love E-Mail and read all classes everyday."

"E-Mail is essential; it's one of those deals that, though it hasn't been around too awfully long, now that I've got it I can't live without it."

"If a dialogue or conversation with an individual requires negotiation or reading his/her 'body language' by tone of voice or the passing back-and-forth of variables amountgs of data depending where the direction of the conversation goes, FINE I MAKE THE CALL."

"It cannot replace face-to-face communication, or telephone communication. But it is a way to batch communication that can be batched (it is obviously not directly interactive), and to distribute documents and memos that is very efficient."

"On the down side, I end up spending too much time with mail mesages, and don't spend as much time with people."

"I have found people forced to use e-mail, and generally not computer literate will become comfortable with the computer and tend to learn other ways to use it."

"The 'cocooning' of which you speak is a rare, but potentially severe, problem which must be dealt with by the individual's management, much as other people problems are."

"I think one of the most interesting phenomena surrounding the use of electronic mail for communication is the effect of removing the inhibitions imposed in face-to-face or voice-to-voice contact. Sure, it makes it easier for shy people to speak their minds, but it also changes the tone of discussions toward a more confrontational style. We've all seen (or been involved in) 'mail wars,' in which various people voice their strong opinions using extremely strong language. 'Flaming' is the word the CS community applies to these messages. ... Criticism also tends to be expressed more harshly when delivered over the mail system rather than in person."

"Have you considered that E-mail may also contribute to some miscommunication because people read into messages things that may not be intended. I get the feeling people become offended when reading things that they may not be offended by verbally because of lack of tonal or emotional definition in mail messages."

"It also comes in handy when you need to speak to someone a little bit more confidentially. No one can eavesdrop on E-mail."

"But its main drawback is that people must use it to make it work. My experience has been that often I do not get responses very quickly and often have to ask a person 2 or 3 times before I can get a response. This cuts down on the efficiency of the system and is very frustrating."

"One observation that I have noticed about e-mail is that some employees will say things over e-mail (or use a tone of voice) that they would not use if they were speaking directly to a person on the phone, (they lose their manners)."

"One thing about E-mail is the narrow communication bandwidth. It is very easy to make mistakes about the message, compared to personal communication or telephone. Also letters have a tendency to be better thought out, where E-mail is more often just typed and sent (as is this very message)."

"Effective efficient tool for distributing information to many people in different locations. ... Sometimes abused by people when personal contact would be a better communication tool (especially when providing constructive criticism)."

"I think E-mail is indispensable (especially in my job in ICON), but do find my job isolating, partly as a result of E-mail and the reduced necessity for human contact."

"Actually, my main uses of first class mail are:

1. As a last resort, when I cannot make contact in person.
2. When the person I want to talk to is not at my local site.
3. To get something in writing.
4. To be able to certify messages.
5. To get the same message to multiple people."

"I find myself more communicative thru e-mail than telephone. One reason is that if I have several people to reach with the same message, all I have to do is make a list and broadcast, instead of playing telephone tag with many folks. I will also be more likely to respond to a mail message than a hard-copy memo because of the immediacy of the tool (as witness this response). ... also, sometimes I don't want to commit my thoughts to the written word, and what I say vocally can be ephemeral, not locking me in."

"The physical separation of the correspondents and the lack of body language in the communication makes e-mail a safer medium for correspondents where they can open up quickly without the fear of having a redneck shoot them or a disapproving stare."

"IF IT WERE NOT FOR E-MAIL, I WOULD NOT HAVE KNOWN OF YOUR EXISTENCE, YOUR REQUIREMENT FOR VOLUNTEERS FOR YOUR QUESTIONNAIRE AND YOUR REQUEST FOR COMMENTS."

"It is potentially dangerous, since anything you say can be forwarded to others -- so you have to watch it. ... It's a very useful CYA device."

"For some, it is a means for low risk social interaction; for others it's a forum for expressing opinions; some use it to exchange information. For a frustrated writer like myself, it's first and foremost an opportunity for written expression."

"I think a lot of what you suspect is true. Shy people may use the E-mail (I call it just 'mail') to say something that they might not ordinarily say on the phone or in person."

"With e-mail, once its received, you have a tough time correcting yourself, but on the bright side, you can take all the time you need composing so you have your piece right before you send it."

"What is said is forever. A copy, log or file can be made of a message... Regional or cultural differences are weakly conveyed as well. International communications will always need to be done in a spirit of tolerance and respect for potentially volatile comments that were benign in nature."

"I would be happy to respond to a questionnaire later this year. Mind you sending this out third class is only going to get to people like me who clear their third class out regularly. Not really a random sample!"

"I have to be very persistent. It's easier to put off someone thru mail rather than in person."

"One aspect of E-mail that has crossed me up is the lack of inflection (such as one would hear in a telephone conversation, for example) and the lack of body language (such as one would see in a face-to-face conversation). I can be a very facetious person and this quality (?) is easily lost in E-mail communications."

"I think it can be a little like the anonymous persona adopted by Klan members when they robe and hood themselves -- in many cases people are freed to behave in ways they ordinarily wouldn't, minus the personal contact."

"I find it frustrating that I have to pick my words VERY carefully when I write a message. There can otherwise be much misinterpretation of meaning. And it can be forwarded, out of your control, to someone else who you may never have intended to see it. I am very careful about what I put in writing."

"I'M CONCERNED ABOUT THE HABIT OF HIDING AWAY IN THE OFFICE AND DOING TOO MUCH BY E-MAIL OR V-MAIL. A GOOD BALANCE IS REQUIRED, AND CAN DEFINITELY INCREASE INDIVIDUAL AND GROUP PRODUCTIVITY."

"This may not be exactly what you are looking for, but E-MAIL is a very important tool for us in the Intercontinental Division. There are two major reasons:

- We communicate a lot with countries that are not only very far away but also in completely different time zones (such as plus 16 hours). This makes phone conversations hard.
- We also communicate a lot with countries where people speak marginal english at best (such as Japan and Korea). If I send a mail message, I give the person at the other end a chance to digest the content, ask for help from his local peers if need be and prepare a response which may take him a long time but it is far easier to write than to speak. If I try to call

such a guy, he may very well panic because of language problems and I will also embarrass him."

"User's should know not to jump to conclusions about the tone of a message, and senders should try to think ahead about how their note could be construed. And all should know that sometimes there is no substitute for a telephone call. ... Most companies don't allow 2nd and 3rd class, (or personal use of any kind) so they don't get the full benefits."

"Everywhere else I had worked we had those wonderful people called secretaries. All of those wonderful things they did for us over the years were gone. We now had to go beyond the rough draft for typing and DO IT OURSELVES. ... Sometimes ones mail message is forwarded to parties not originally on distribution with a distorted definition about the message & not so nice words about the original sender who of course is in the dark until they are called on the carpet by their manager to explain themselves. ... We also have the eternal english students that don't understand any thing they read but are swift to catch every little typo or improper use of the language. They even take the time to respond to your mail message and all they want to tell you about is how you misspelled a word or how you did not place a comma where you should have. These people are like hemorrhoids in the anus of humanity."

"IS "COCOONING" A REAL WORD, OR ANOTHER LANGUAGE POLLUTION?"

"The facility of forwarding messages or attaching other documents including complete contracts is a very time efficient method of communicating with our legal department..."

"No education on Email other than technical has ever been given in Tandem. ... Many time I have called someone to find out why their message was so angry only to find out that they were either joking or that they meant something totally different."

"I work in a small office in a Branch in Queensland Australia. E-mail is our connection to the greater world. ... It is the modern day letterbox."

"Positives

- o Brain tap - knowing you can ask a collective thinktank for help
- o team building - never ceases to amaze me how people team up to respond to your request for help...

Negatives

- o Not getting your mail read by other correspondents"

"It is every bit the change that the telephone brought to society. ... Send a message anywhere in the world in minutes and get a response whether they are right there or not."

"People who refrain from personal interaction with other people probably already avoid the use of the telephone or personal meetings. E-Mail does give them a non-threatening way to communicate their knowledge and opinions."

"Working in different time zones (I sit in West Germany) is much easier. How often have I unsuccessfully tried to call somebody when our overlapping working interval was only three hours a day."

"I think the most important - and least discussed - factor about E-mail is its coldness as a medium. What this means in practice is that because you lack other cues (such as tone of voice on the phone, or facial expression in person) you must be careful to express your warmth of emotion in words. ... Also, I pay attention to salutations and closings because they set the tone of an E-mail message. That is also why ALL CAPS SOUND LIKE SOMEONE'S SHOUTING AT YOU, and therefore should be avoided in all E-mail. ... Also, people tend to abbreviate messages in E-mail, in order to send them quickly, but short messages can sound particularly abrupt."

"I think E-mail creates a sense of community within Tandem."

"I think we all take a bit of extra time when writing to make sure that our thoughts are clear and our points understood. ... We all know that, excluding recording, a phone call type conversation is transitory. Once the carbon in the phone stops vibrating, it's over except for the memory. With an E-message there is an air of permanence that is lacking from day to day phone conversations."

"I had romantic relationships with a couple of men at different times at my previous job, and I talked extensively with them over the network. I tend to find it difficult to talk about my feelings face to face, but I found it easy to talk to them through E-mail. I've had some very emotional conversations over the net."

"People who travel a great deal can retrieve their messages from a remote location and respond to any queries. Also, on each E-mail system that I have worked with, a sender is able to 'certify' the message. This allows the sender to know that a message has been received. This can be an excellent tool in documentation of communication for an important issue. ... Speed of

delivery can also be a plus with E-mail. Usually an E-mail message can be delivered much faster than an inter-office envelope."

"People do not always read E-mail on a regular basis which can delay response."

"It really helps me feel a part of what could be a very intimidating company."

"One problem with mail Vs the phone is that it's very difficult to convey irony or sarcasm in a mail message . . . people can easily get the wrong impression."

"Everyone is as close as your terminal. The wealth of information and support is boundless. ... My words represent me if I am unknown at the receiver's end. Of course, that makes message rewrites quite frequent before the old send key is punched! It forces me to really think about what I'm writing."

"I think people sometimes send messages they wish they hadn't; it's easier to zap something off to a computer screen without thinking about it, than to say it face to face. ... People tend to be more 'cut and dry' using e-mail, where face to face or on the telephone, they'd be more sociable and friendly. With e-mail, people tend to 'get to the point' more quickly."

Message #2

Hi Tandem,

Have you ever been blasted over e-mail? In other words, have you received a message that you felt was unnecessarily harsh or critical? If so, I'd like to hear about it if you feel like sharing, as part of my thesis research.

Along the same lines, have you ever been ignored via e-mail? If so, how did you feel about it?

Or how about this--have you ever sent or received an e-mail message that was meant to be light/humorous, but didn't come across that way because the nonverbal cues couldn't accompany the message?

For any responses that you send me, it would be helpful to know which class of mail (1st, 2nd, or 3rd) was involved, any details about the subject and context of the interaction, and any characteristics of the sender and/or receiver that might be pertinent.

Thanks,

Gail

Selected Excerpts from Responses to Message #2

"As for being ignored, it happens all the time. ... there are a few people I deal with who only reply to messages which push one of their hot buttons. If it is my hot button and not theirs, I'm out of luck."

"I can recall one third class message that I thought had some humor in it - but . . . After a few repartes with the sender, I realized that they were operating on a different wavelength than I."

"...you certainly begin to understand that what sounds benign to you on mail can sound less so to someone else, so perhaps you tone down your messages somewhat. And of course, you have to say @am I reading this harsher than the guy (sexism intended, its always a guy) meant?@"

"A person who I can't believe eats with the same 'mouth' that heaped outright profane aggression in a response that had to take 10 times the energy and time it would have taken to simply deep-six or F6 my erroneous message."

"Overall I would say with respect to the complete 'audience' who received my message, only a small handful went the extra 'mile' to be rude/insulting and many seemed to basically just be venting frustration. However a very small few seemed to delight in telling me how 'dumb/wasteful/ignorant' I was"

"A couple of years ago, I put out a very simple message asking people for their recommendations of 'new age' reading material. Along with some very nice, informative replies, I got several (expected) ones telling me to read the Bible. However, they were cordial. The doozy was from a guy I didn't know, but who happened to work in the same building as me. His response was 'Go get a lobotomy!'"

"My guess is that folks feel safer sending a critical message by mail and that the lack of human interaction contributes a great deal to misunderstandings."

"A few years ago, I sent a mail message to follow up on some action items in HQ. Several of the items were assigned to a pregnant woman. In an attempt at light-heartedness and to indicate that a slippage in dates was acceptable, I made reference to the woman's pregnancy as a possible excuse for a delay. The woman in question was extremely upset -- it appeared to her that I was implying that her pregnancy was affecting her job performance."

"The only thing along that line that has ever upset me is when I spend 5 or 10 minutes responding to someones 3rd class mail question, really try to help the person out and they don't even acknowledge that I made the effort."

"Many of the newsgroups are prone to flaming. Some people refer to the act in their posts, including disclaimers around paragraphs that they feel are likely to set people off. (Typical usage: 'Don asbestos suit', flame prone material, 'remove asbestos suit.') ... In any case, 'flamers' are stereotypically believed to be people with narrow strongly held beliefs, who cannot accept the existence of any point of view other than their own."

"'If you're going to stop people from sending things that aren't funny to the majority,' I blasted him back, 'then for heaven's sake, don't stop with me!'"

"Someone asked third class where he could find oversize jellybeans. He said that his brother wanted them, but he had no idea why. I knew the guy really wanted an answer, but I didn't think he would object to a humorous reply, so

I wrote back, 'Why don't you ask President Reagan? As for why your brother might want them, well, consider what they could do for his political career!' He replied that he had asked a serious question, even if it wasn't very important, and didn't appreciate my making fun of it."

"Boy, have I ever! There were several mail messages/replies I sent out which resulted in an unexpected avalanche of heated replies. In one case, a message I thought was clearly humorous (about babies) was completely misinterpreted."

"The times I've been ignored stand out in my mind the most: When I have taken plenty of time to reply to someone's questions about, for example, where to stay and what to do in Big Sur, and they don't even sent me a THANKS NT reply!"

"I have been 'BLASTED' for everything from using ALL CAPS in a message, for submitting jokes with self-explanatory punch lines, for asking if anyone in the cooking SIG wanted a certain recipe (why ask, just submit the damn thing), and most recently for not using PRINT option correctly when I complained about respondents to messages using F4 instead of F10."

"I sent a message to the Humor SIG 'explaining' why it takes gasoline prices months to drop at the pump after the price of crude crashes, and why prices at the pump go up within hours when the price of crude rises. Seeing that the two explanations were in obvious contrast and the message was sent to the 'Humor SIG,' I thought it would be apparent to everybody that the piece was a satire. To my consternation, I received five replies from people who angrily pointed out that my arguments were 'flawed' and castigated me for taking the side of the price gougers."

"Don't forget to consider when people INSIST ON TYPING THEIR CORRESPONDENCE IN ALL CAPS! IT MAKES ME FEEL LIKE THEY ARE YELLING AT ME! Don't you think so?"

"Being blasted, as you say, is Status Quo, here in the Latin Region. Our comm is to South America, and Spanish is a very subjective language, thus perceived emotionally, written or spoken. Even Latins find E-mail Spanish most difficult. As a result, over the years, I have learned enough humility to say 'I'm sorry' frequently."

"In the world of Usenet, it has become very common to use the various kinds of faces to add the 'body language' that would go along with face to face dialog. Hence, one often sees a happy face -- :-) -- or an unhappy face :-(or a winking eye ;-) or disgruntled :- / or what have you. I received a message from someone recently that included a :-) and it was

good because the statement that it accompanied could have been misconstrued."

"I can certainly say that as someone with a very dry sense of humour I have learnt not to use it on mail. I have in the past made what I thought were very ironic statements and been somewhat startled to find a reply that took it seriously and leaped into a 30-page dissertation on my innocent one sentence!"

"Here it is . . .

- 1) I replied, first class to the sender only. I did not CC anyone.
- 2) My msg was put in a reply file.
- 3) The location of the reply file was broadcasted.
- 4) Someone read my reply to a specific question.
- 5) This person decided to tell me I was selfish and was totally unkind in their msg to me.
- 6) I replied, I only answered a question and felt hurt by their attack on me. And please not reply 'the damage was done'.
- 7) They replied they were sorry and that if I was not big enough to accept. . . It turned nasty once again.
- 8) I got HR involved. I gave HR copies of all the mail msgs. HR told me I had every right to feel hurt by the attack.
- 9) The other person was talked to by their manager and HR (per HR).

The subject was personel and a very emotional subject for me. I only replied answering their query. Believe it or not, I agreed (in principal) with the person sending me all of the nasty mail messages. . . "

"Dear Ms. Mail-Wars-Mangler,

You have a hell of a lot of nerve asking such rude and indecent questions! You should be ashamed of yourself. Our right to privacy is GUARENTEED by the Federal Government, except when it INVOLVES the Federal Government, by our sacred Consitution.

'T've got a rifle in my truck	(as sung by Mick Jagers,)
Mess with me, you're out of luck	(that hippie Communist who)
Cause I'm a REDNECK'	(is in love with David Bowie)

Give me a soapbox to stand on now, bubba. You listen here now, little missy. Don't you go round stirring up trouble in these here parts of my 3rd-class mail, I got 'nuf trouble just getting thru all these here messages written by those silk-pants types trying to sell their CDs that were written by 'men' (and I use that in the broadest sense) who wore lace union suits and wigs, and covered themsalvs with PERFUME an other fairy stuff.

Now, you take my advice, young-un. You jest cancel that ther message that's getting all us REAL Americans (not the ones who drive them Volvos and Beamers) all fired up and ready to kick some butt, and cancel that sucker right here and now, or we'll call out the National Guard and have em put up an aim-bargo right around your house. Course, you're probably one of them yuppie types who have condos so's ya doesn't have ta mow the lawn like us god-fearing Americans. Do it now, or we'll come and smack ya upside the haid, give ya a whats-for and all that. Smarty pants!

Have a good day,
Earl Pitts, American"

* * *

This last entry deserves a follow-on commentary. The researcher was rather taken aback by the tone of the message, although it seemed likely that it was an attempt at humor. The one-line question--"Is this for real?"--was sent back to the originator of the message. His reply follows:

"Ummmmmm, I think this is a GREAT example of exactly what you were looking for. My original reply to your message was meant PURELY in jest. I kind of thought that the closing statement "Have a nice day" would have tipped you off.

The Earl Pitts, American signature is a character on one of the local radio stations down here. He's a codgitty old right-winger who VERY opinionated, and usually has his facts wrong. (Not that ALL conservatives have their facts wrong. Let's not start a REAL mail war here."

Appendix E
Pilot Survey and Preletter

Dear Survey Participant:

I know that you are very busy, but I would like to ask for five minutes of your time to fill out a survey on electronic mail attitudes.

Your name was one of only 20 names selected from the LOCNAL distribution list to pilot test the survey. The survey is called IMPACT OF USERS' ORAL/LITERATE STEREOTYPES ON ELECTRONIC MAIL USAGE. It consists of 24 short questions, plus a few demographic questions. The purpose of the survey is to find out whether expectations based on speaking/writing experience transfer to electronic mail usage.

Although this study is being undertaken as part of the requirements for an M.A. Degree in Industrial Studies (San Jose State University), I believe that it has direct relevance to Tandem. I sincerely hope that you will complete the survey and return it to me at your earliest convenience.

I'll be sending you the survey on-line in about a week. If possible, would you please edit the survey and return it to me via e-mail? If you prefer to mark a hard copy instead, you can print the message out and return it to me via interoffice mail (Loc. 55-50).

Since you are part of the pilot group, any comments you may have regarding the survey instrument itself will also be very welcome. Thank you in advance for your help!

Regards,

Gail Garabedian

IMPACT OF USERS' ORAL/LITERATE STEREOTYPES
ON ELECTRONIC MAIL COMMUNICATION

The attached survey is designed to assess how e-mail users feel about spoken vs. written messages, and how these feelings may affect their experience with e-mail. For each statement below, please put an "X" in the space that indicates the degree to which you agree or disagree with the statement.

Please respond to all 24 statements, and to the demographic questions at the end of the survey, and return to GARABEDIAN_GAIL at your earliest convenience. I would also welcome your comments; a space for comments is provided at the end of the questionnaire.

Thank you very much for taking the time to complete this survey. If you have any questions, please call me at (408) 285-2698 (work) or (408) 257-6867 (home), or send me a mail message. If you are interested in the results of the survey, please let me know.

1. Speaking is more spontaneous than writing.

<u>Agree</u>	<u>Agree</u>	<u>Neither</u>	<u>Disagree</u>	<u>Strongly</u>
Strongly	Somewhat	Agree nor	Somewhat	Disagree
		Disagree		

2. A spoken message will receive a quicker response than a written message.

<u>Agree</u>	<u>Agree</u>	<u>Neither</u>	<u>Disagree</u>	<u>Strongly</u>
Strongly	Somewhat	Agree nor	Somewhat	Disagree
		Disagree		

3. Written messages are more carefully planned than spoken messages.

<u>Agree</u>	<u>Agree</u>	<u>Neither</u>	<u>Disagree</u>	<u>Strongly</u>
Strongly	Somewhat	Agree nor	Somewhat	Disagree
		Disagree		

4. Writing is more formal than speaking.

<u>Agree</u> Strongly	<u>Agree</u> Somewhat	<u>Neither</u> Agree nor Disagree	<u>Disagree</u> Somewhat	<u>Strongly</u> Disagree
--------------------------	--------------------------	---	-----------------------------	-----------------------------

5. Speaking is more personal than writing.

<u>Agree</u> Strongly	<u>Agree</u> Somewhat	<u>Neither</u> Agree nor Disagree	<u>Disagree</u> Somewhat	<u>Strongly</u> Disagree
--------------------------	--------------------------	---	-----------------------------	-----------------------------

6. A written message is less ambiguous than a spoken message.

<u>Agree</u> Strongly	<u>Agree</u> Somewhat	<u>Neither</u> Agree nor Disagree	<u>Disagree</u> Somewhat	<u>Strongly</u> Disagree
--------------------------	--------------------------	---	-----------------------------	-----------------------------

7. Spoken messages are forgotten more quickly than written messages.

<u>Agree</u> Strongly	<u>Agree</u> Somewhat	<u>Neither</u> Agree nor Disagree	<u>Disagree</u> Somewhat	<u>Strongly</u> Disagree
--------------------------	--------------------------	---	-----------------------------	-----------------------------

8. Most e-mail messages are spontaneous.

<u>Agree</u> Strongly	<u>Agree</u> Somewhat	<u>Neither</u> Agree nor Disagree	<u>Disagree</u> Somewhat	<u>Strongly</u> Disagree
--------------------------	--------------------------	---	-----------------------------	-----------------------------

9. Most e-mail messages are carefully planned.

<u>Agree</u> Strongly	<u>Agree</u> Somewhat	<u>Neither</u> Agree nor Disagree	<u>Disagree</u> Somewhat	<u>Strongly</u> Disagree
--------------------------	--------------------------	---	-----------------------------	-----------------------------

10. E-mail messages should be answered promptly.

<u>Agree</u> Strongly	<u>Agree</u> Somewhat	<u>Neither</u> Agree nor Disagree	<u>Disagree</u> Somewhat	<u>Strongly</u> Disagree
--------------------------	--------------------------	---	-----------------------------	-----------------------------

11. The meaning of most e-mail messages is clear.

<u>Agree</u> Strongly	<u>Agree</u> Somewhat	<u>Neither</u> Agree nor Disagree	<u>Disagree</u> Somewhat	<u>Strongly</u> Disagree
--------------------------	--------------------------	---	-----------------------------	-----------------------------

12. The life span of an e-mail message is fairly short.

<u>Agree</u> Strongly	<u>Agree</u> Somewhat	<u>Neither</u> Agree nor Disagree	<u>Disagree</u> Somewhat	<u>Strongly</u> Disagree
--------------------------	--------------------------	---	-----------------------------	-----------------------------

13. E-mail messages are impersonal.

<u>Agree</u> Strongly	<u>Agree</u> Somewhat	<u>Neither</u> Agree nor Disagree	<u>Disagree</u> Somewhat	<u>Strongly</u> Disagree
--------------------------	--------------------------	---	-----------------------------	-----------------------------

14. E-mail messages are formal.

<u>Agree</u> Strongly	<u>Agree</u> Somewhat	<u>Neither</u> Agree nor Disagree	<u>Disagree</u> Somewhat	<u>Strongly</u> Disagree
--------------------------	--------------------------	---	-----------------------------	-----------------------------

15. It is rude to ignore an e-mail message.

<u>Agree</u> Strongly	<u>Agree</u> Somewhat	<u>Neither</u> Agree nor Disagree	<u>Disagree</u> Somewhat	<u>Strongly</u> Disagree
--------------------------	--------------------------	---	-----------------------------	-----------------------------

16. People should read their first class e-mail at least once a day.

<u>Agree</u>	<u>Agree</u>	<u>Neither</u>	<u>Disagree</u>	<u>Strongly</u>
Strongly	Somewhat	Agree nor	Somewhat	Disagree
		Disagree		

17. I expect the reader to understand the tone (e.g., serious or facetious) of my e-mail messages.

<u>Agree</u>	<u>Agree</u>	<u>Neither</u>	<u>Disagree</u>	<u>Strongly</u>
Strongly	Somewhat	Agree nor	Somewhat	Disagree
		Disagree		

18. I always reread my e-mail messages before sending to check for clarity and possible ambiguities.

<u>Agree</u>	<u>Agree</u>	<u>Neither</u>	<u>Disagree</u>	<u>Strongly</u>
Strongly	Somewhat	Agree nor	Somewhat	Disagree
		Disagree		

19. When I am offended by the tone of an e-mail message, I assume that the writer meant to offend.

<u>Agree</u>	<u>Agree</u>	<u>Neither</u>	<u>Disagree</u>	<u>Strongly</u>
Strongly	Somewhat	Agree nor	Somewhat	Disagree
		Disagree		

20. It annoys me when I do not receive a prompt response to an e-mail message.

<u>Agree</u>	<u>Agree</u>	<u>Neither</u>	<u>Disagree</u>	<u>Strongly</u>
Strongly	Somewhat	Agree nor	Somewhat	Disagree
		Disagree		

21. When I receive an e-mail message, I expect it to be clearly and unambiguously written.

<u>Agree</u>	<u>Agree</u>	<u>Neither</u>	<u>Disagree</u>	<u>Strongly</u>
Strongly	Somewhat	Agree nor	Somewhat	Disagree
		Disagree		

22. If I receive unusually harsh criticism via e-mail, I save the message.

<u>Agree</u>	<u>Agree</u>	<u>Neither</u>	<u>Disagree</u>	<u>Strongly</u>
Strongly	Somewhat	Agree nor	Somewhat	Disagree
		Disagree		

23. When I criticize someone via e-mail, I expect him/her to save the message.

<u>Agree</u>	<u>Agree</u>	<u>Neither</u>	<u>Disagree</u>	<u>Strongly</u>
Strongly	Somewhat	Agree nor	Somewhat	Disagree
		Disagree		

24. If the reader misinterprets my e-mail message, it is the reader's fault.

<u>Agree</u>	<u>Agree</u>	<u>Neither</u>	<u>Disagree</u>	<u>Strongly</u>
Strongly	Somewhat	Agree nor	Somewhat	Disagree
		Disagree		

Comments:

DEMOGRAPHIC INFORMATION

Please complete the following demographic information. The first four items are strictly for the purpose of validating the randomness of the survey sample. Item #5 (native language) will be used to determine whether future e-mail research on language variables might be productive. Item #6 may be useful in explaining any patterns that emerge from the survey.

1. Job type:
 - ☐ Staff manager
 - ☐ Mid-level non-technical manager
 - ☐ Mid-level technical manager
 - ☐ Line manager
 - ☐ Technical professional (hardware)
 - ☐ Non-technical professional
 - ☐ Technical professional - programmer
 - ☐ Technical professional - software designer
 - ☐ Technical support
 - ☐ Admin support
 - ☐ Manufacturing
 - ☐ Direct sales professional
 - ☐ Other (please specify) _____
2. Sex:
 - ☐ male
 - ☐ female
3. Year hired at Tandem:
 - ☐ 1974
 - ☐ 1975
 - ☐ 1976
 - ☐ 1977
 - ☐ 1978
 - ☐ 1979
 - ☐ 1980
 - ☐ 1981
 - ☐ 1982
 - ☐ 1983
 - ☐ 1984
 - ☐ 1985
 - ☐ 1986
 - ☐ 1987
 - ☐ 1988
 - ☐ 1989
 - ☐ 1990

4. Race: ☐ White (non-Hispanic)
☐ Black
☐ Hispanic
☐ Asian
☐ Indian or Eskimo
5. Native language: ☐ English
☐ Other (please specify) _____
6. How often do you
log on to e-mail
in an average work
day? ☐ Less than once a day
☐ 2 times a day
☐ 3 times a day
☐ 4 times a day
☐ 5 times a day
☐ More than 5 times a day

Appendix F

Survey Instrument

IMPACT OF USERS' ORAL/LITERATE STEREOTYPES
ON ELECTRONIC MAIL COMMUNICATION

The attached survey is designed to assess how e-mail users feel about spoken vs. written messages, and how these feelings may affect their experience with e-mail. For each statement below, please put an "X" in the space that indicates the degree to which you agree or disagree with the statement.

Please respond to all 25 items, and to the demographic questions at the end of the survey, and return to GARABEDIAN_GAIL at your earliest convenience. I would also welcome your comments; a space for comments is provided at the end of the questionnaire.

Thank you very much for taking the time to complete this survey. If you have any questions, please call me at (408) 285-2698 (work) or (408) 257-6867 (home), or send me a mail message. If you are interested in the results of the survey, please let me know.

1. A spoken message will normally receive a quicker response than a written message.

_____ Agree _____ _____ _____ _____ Disagree

2. Written messages are usually more carefully planned than spoken messages.

_____ Agree _____ _____ _____ _____ Disagree

3. Writing tends to be more formal than speaking.

_____ Agree _____ _____ _____ _____ Disagree

4. A written message is typically less ambiguous than a spoken message.

_____ Agree _____ _____ _____ _____ Disagree

5. Spoken messages tend to have a shorter life span than written messages.

Agree _____ _____ _____ _____ Disagree

6. Most e-mail messages are spontaneous.

Agree _____ _____ _____ _____ Disagree

7. Most e-mail messages are carefully planned.

Agree _____ _____ _____ _____ Disagree

8. E-mail messages should be answered promptly.

Agree _____ _____ _____ _____ Disagree

9. The meaning of most e-mail messages is clear.

Agree _____ _____ _____ _____ Disagree

10. The life span of an e-mail message is typically fairly short.

Agree _____ _____ _____ _____ Disagree

11. E-mail messages tend to be impersonal.

Agree _____ _____ _____ _____ Disagree

12. It is inconsiderate to be slow in responding to an e-mail message.

Agree _____ _____ _____ _____ Disagree

13. People should read their first class e-mail at least twice a day.

Agree _____ _____ _____ _____ Disagree

14. I expect the reader to understand the tone (e.g., serious or facetious) of my e-mail messages.

Agree _____ _____ _____ _____ Disagree

15. I generally plan what I am going to say before generating an e-mail message.

Agree _____ _____ _____ _____ Disagree

16. E-mail messages tend to be formal.

Agree _____ _____ _____ _____ Disagree

17. When I am offended by the tone of an e-mail message, generally it is because the writer meant to offend.

Agree _____ _____ _____ _____ Disagree

18. It annoys me when I do not receive a prompt response to an e-mail message.

Agree _____ _____ _____ _____ Disagree

19. I expect people to plan what they are going to say before sending me an e-mail message.

Agree _____ _____ _____ _____ Disagree

20. If I receive criticism via e-mail, I usually save the message.

Agree _____ _____ _____ _____ Disagree

21. If the reader misinterprets my e-mail message, it is usually because my message was ambiguous in some way.

Agree _____ _____ _____ _____ Disagree

22. Most e-mail messages have a casual tone.

Agree _____ _____ _____ _____ Disagree

23. Most e-mail messages are purged after they have been read.

Agree _____ _____ _____ _____ Disagree

24. People are generally careful to use correct spelling and grammar in their e-mail messages.

Agree _____ _____ _____ _____ Disagree

25. When I criticize someone via e-mail, I expect him/her to save the message.

Agree _____ _____ _____ _____ Disagree

DEMOGRAPHIC INFORMATION

Please complete the following demographic information. The first four items are strictly for the purpose of validating the representativeness of the survey sample. Item #5 (native language) will be used to determine whether future e-mail research on language variables might be productive. Item #6 may be useful in explaining any patterns that emerge from the survey.

1. Job type:
- ☐ Staff manager
 - ☐ Mid-level non-technical manager
 - ☐ Mid-level technical manager
 - ☐ Line manager
 - ☐ Technical professional (hardware)
 - ☐ Non-technical professional
 - ☐ Technical professional - programmer
 - ☐ Technical professional - software designer
 - ☐ Technical support
 - ☐ Admin support
 - ☐ Manufacturing
 - ☐ Direct sales professional
 - ☐ Other (please specify) _____
2. Sex:
- ☐ male
 - ☐ female
3. Year hired at Tandem:
- ☐ 1974
 - ☐ 1975
 - ☐ 1976
 - ☐ 1977
 - ☐ 1978
 - ☐ 1979
 - ☐ 1980
 - ☐ 1981
 - ☐ 1982
 - ☐ 1983
 - ☐ 1984
 - ☐ 1985
 - ☐ 1986
 - ☐ 1987
 - ☐ 1988
 - ☐ 1989
 - ☐ 1990

4. Race: ☐ White (non-Hispanic)
☐ Black
☐ Hispanic
☐ Asian
☐ Indian or Eskimo
5. Native language: ☐ English
☐ Other (please specify) _____
6. How often do you ☐ Less than once a day
log on to e-mail ☐ 2 times a day
in an average work ☐ 3 times a day
day? ☐ 4 times a day
☐ 5 times a day
☐ More than 5 times a day

Comments:

Appendix G

Coding of Survey Data

Coding of Survey Data

"Stereotype" questions #1-5:

(6)	(5)	(4)	(3)	(2)	(1)
_____	_____	_____	_____	_____	_____
Agree					Disagree

A response of 4, 5, or 6 was interpreted as agreement with the stereotype. A response of 1, 2, or 3 was interpreted as disagreement with the stereotype.

"E-mail" questions #6, 8, 10, 12, 13, 18, 21, 22, and 23:

(6)	(5)	(4)	(3)	(2)	(1)
_____	_____	_____	_____	_____	_____
Agree					Disagree

"E-mail" questions #7, 9, 11, 14, 15, 16, 17, 19, 20, 24, 25:

(1)	(2)	(3)	(4)	(5)	(6)
_____	_____	_____	_____	_____	_____
Agree					Disagree

For questions #6-25, a response of 4, 5, or 6 was interpreted as indicating a speaking bias, and a response of 1, 2, or 3 was interpreted as indicating a writing bias.

Demographic information:

Manager = 1
Non-manager = 2

Male = 1
Female = 2

Native language English = 1
Native language other than English = 2

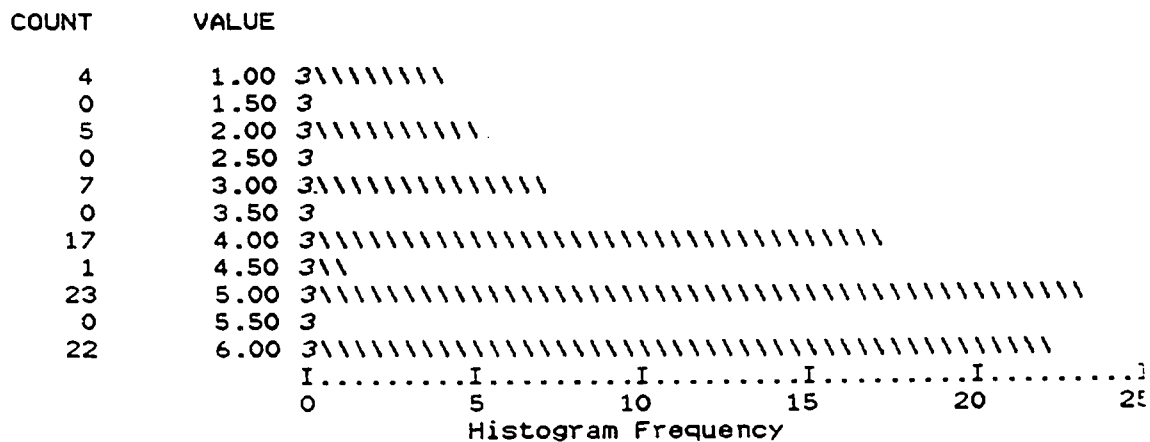
E-mail logon ≤ 3 times a day = 1
E-mail logon ≥ 4 times a day = 2

Appendix H

Histograms of Responses to Questions #1-25

Group #1 (Randomly Selected Sample)

Q1

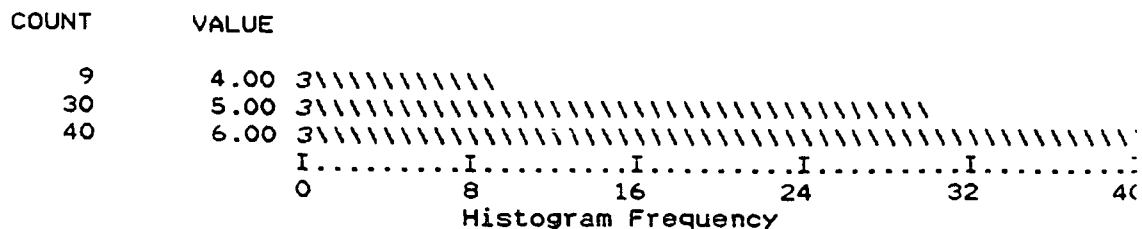


Mean 4.487 Median 5.000 Std Dev 1.412

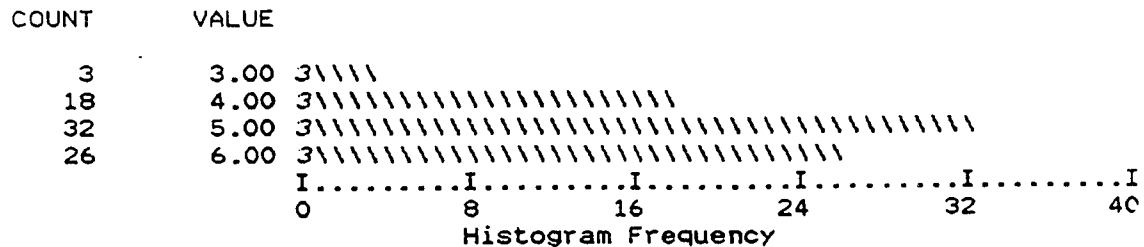
Valid Cases 79 Missing Cases 0

Q2

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
Agree	4.00	9	11.4	11.4	11.4
	5.00	30	38.0	38.0	49.4
	6.00	40	50.6	50.6	100.0
TOTAL		79	100.0	100.0	



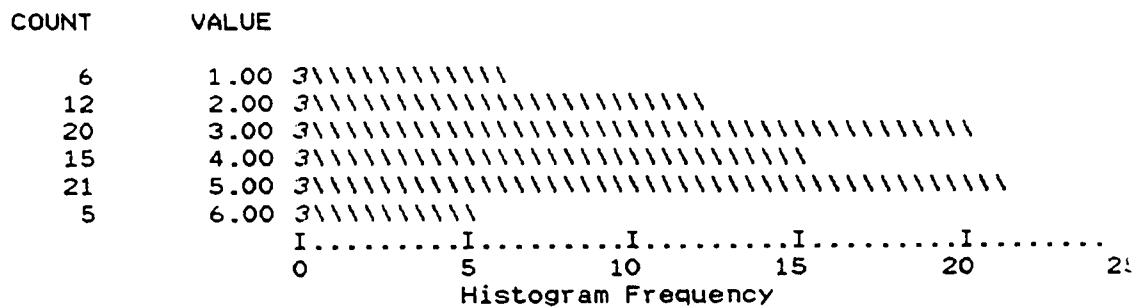
Q3



Mean 5.025 Median 5.000 Std Dev .847

Valid Cases 79 Missing Cases 0

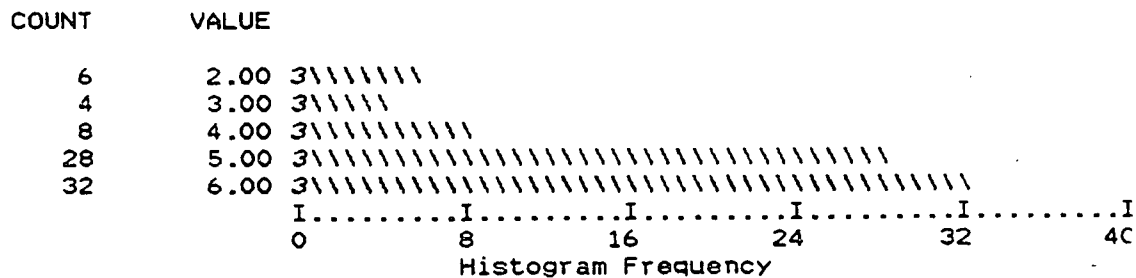
Q4



Mean 3.608 Median 4.000 Std Dev 1.391

Valid Cases 79 Missing Cases 0

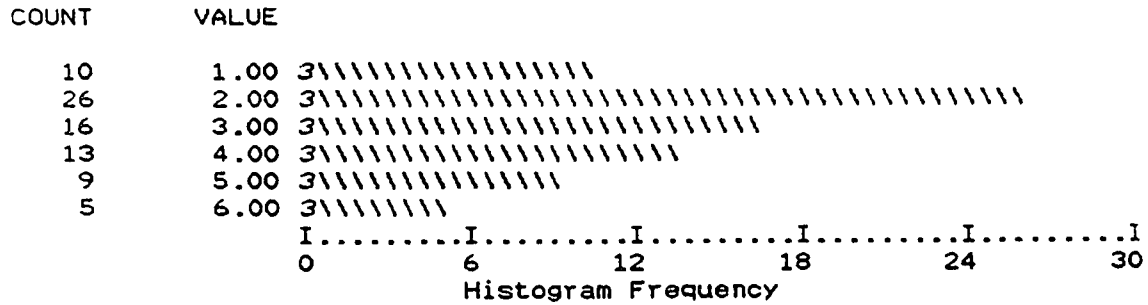
Q5



Mean 4.974 Median 5.000 Std Dev 1.195

Valid Cases 78 Missing Cases 1

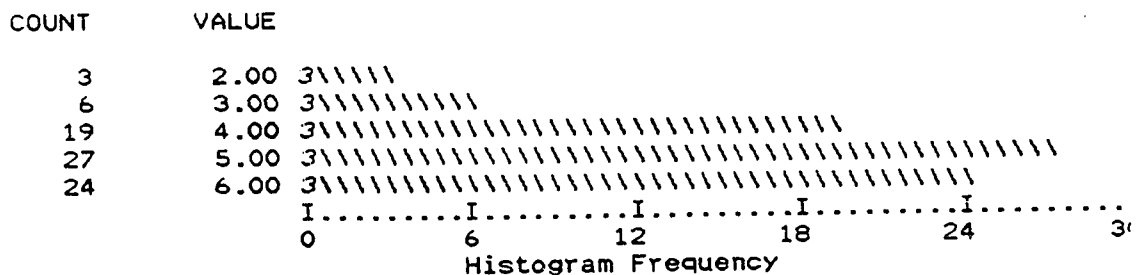
Q6



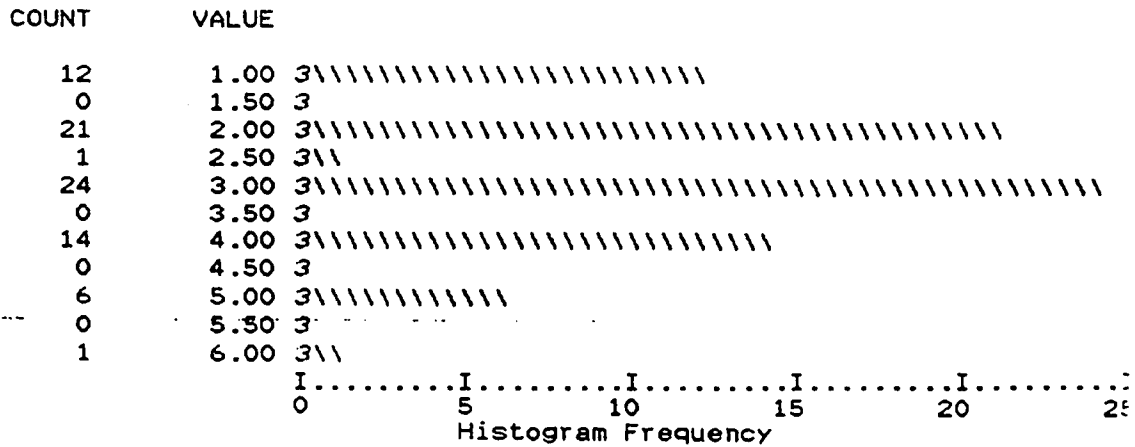
Q7



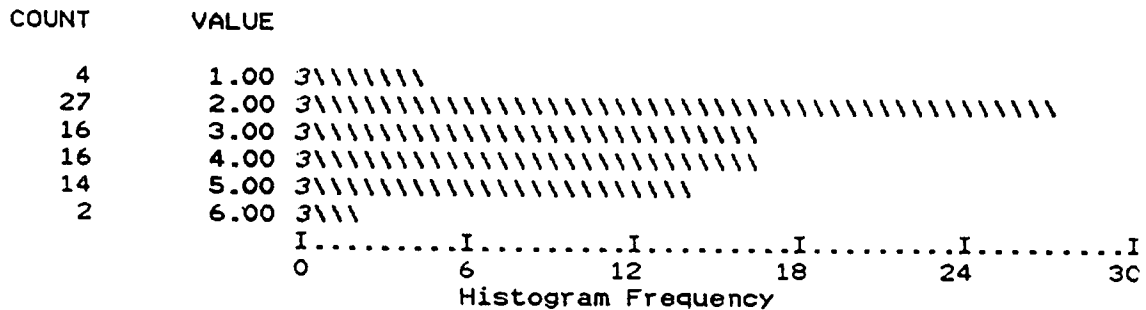
Q8



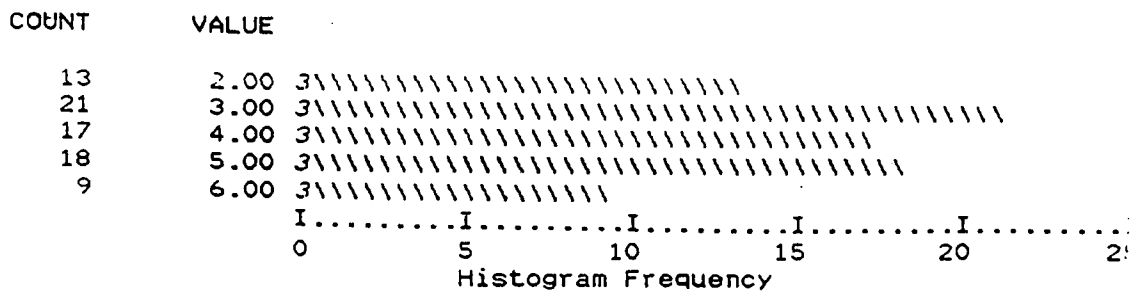
Q9



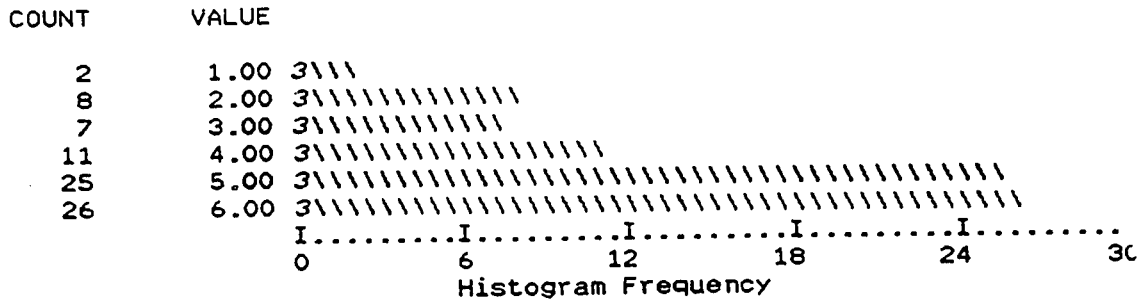
Q10



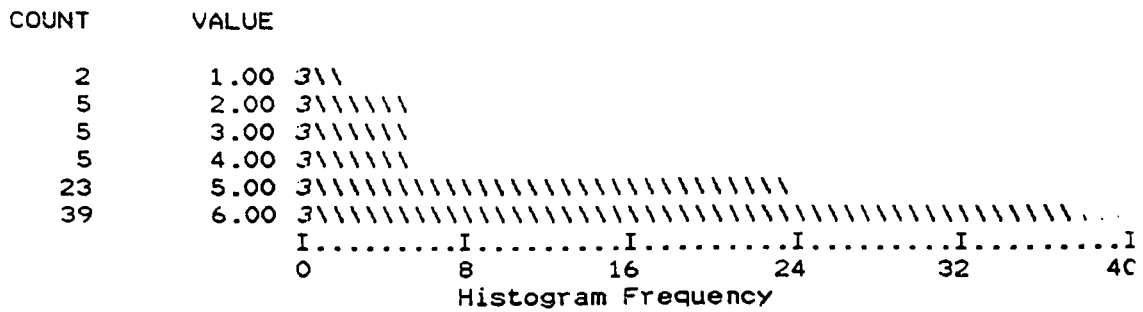
Q11



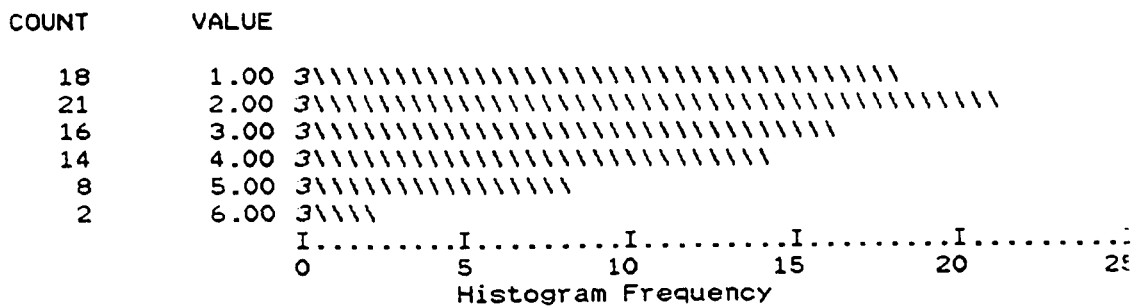
Q12



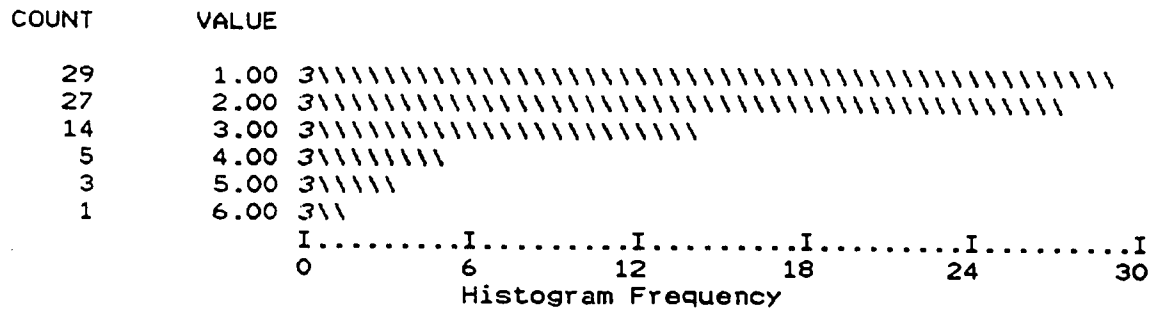
Q13



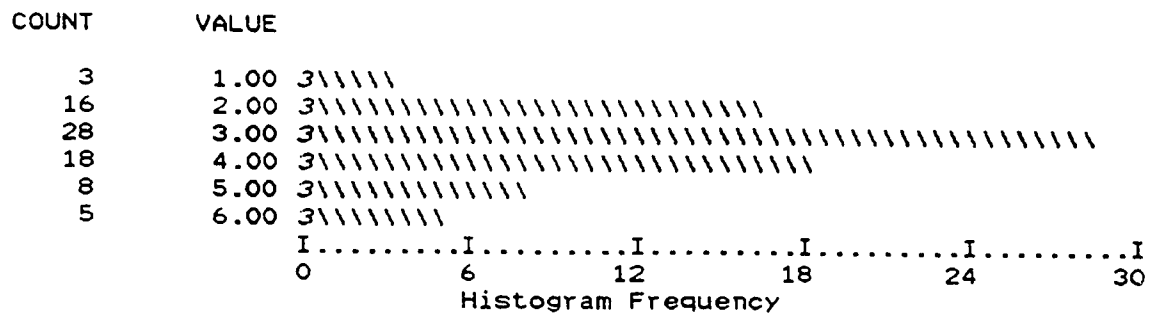
Q14



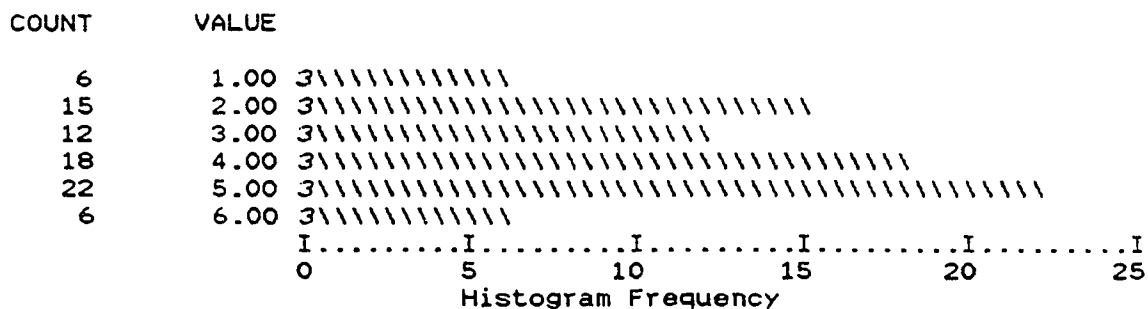
Q15



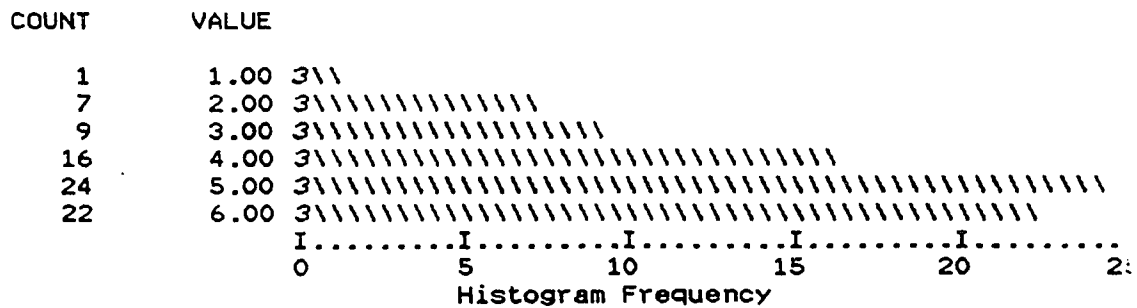
Q16



Q17



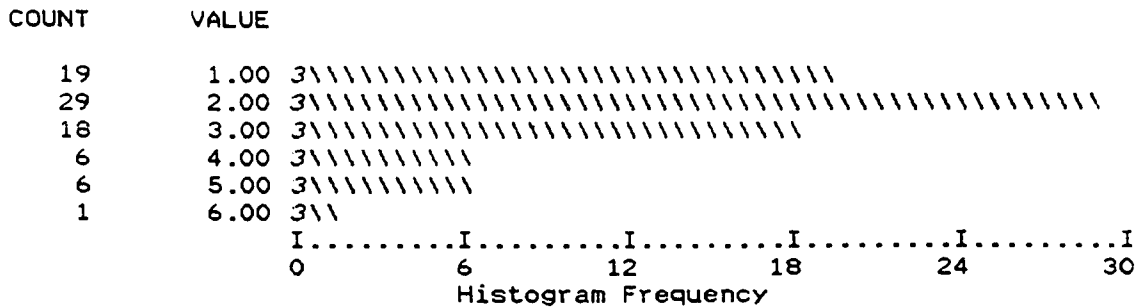
Q18



Mean 4.532 Median 5.000 Std Dev 1.319

Valid Cases 79 Missing Cases 0

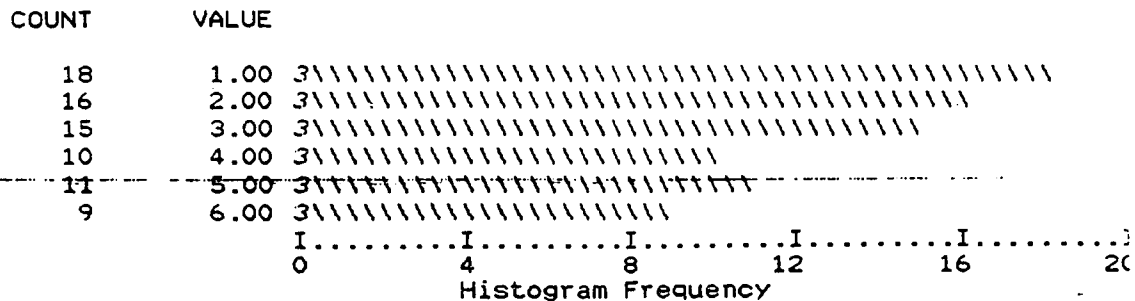
Q19



Mean 2.418 Median 2.000 Std Dev 1.226

Valid Cases 79 Missing Cases 0

Q20



Mean 3.089 Median 3.000 Std Dev 1.688

Valid Cases 79 Missing Cases 0

Q21

COUNT

VALUE

[illegible]

Mean	4.696	Median	5.000	Std Dev	1.113
------	-------	--------	-------	---------	-------

Valid Cases	79	Missing Cases	0
-------------	----	---------------	---

Q22

COUNT

VALUE

[illegible]

Mean	3.962	Median	4.000	Std Dev	1.315
------	-------	--------	-------	---------	-------

Valid Cases	79	Missing Cases	0
-------------	----	---------------	---

Q23

COUNT

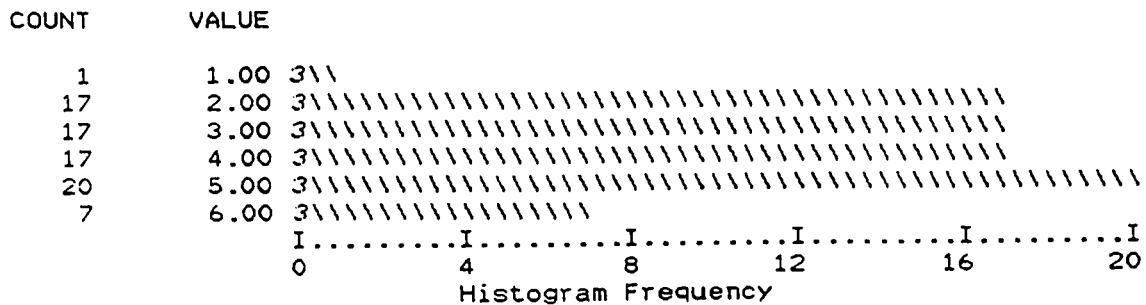
VALUE

[illegible]

Mean	4.269	Median	5.000	Std Dev	1.255
------	-------	--------	-------	---------	-------

Valid Cases	78	Missing Cases	1
-------------	----	---------------	---

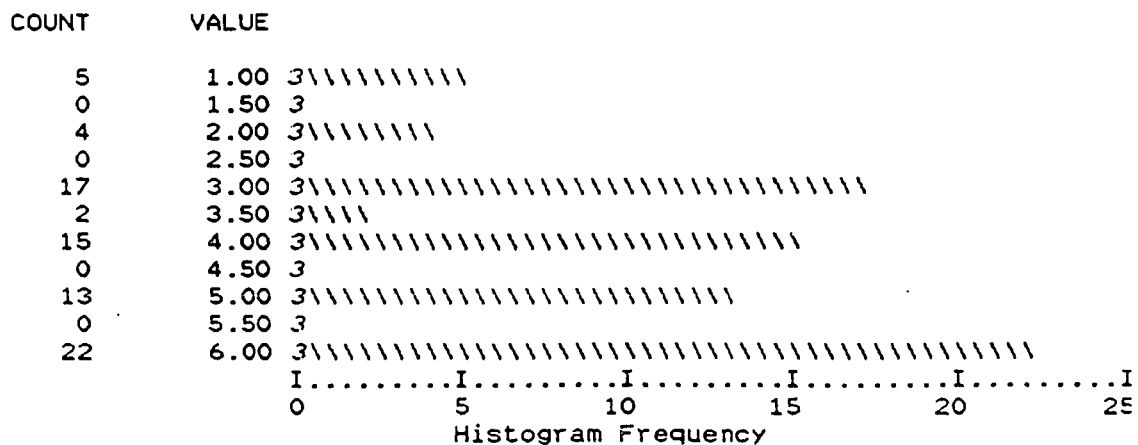
Q24



Mean 3.747 Median 4.000 Std Dev 1.325

Valid Cases 79 Missing Cases 0

Q25

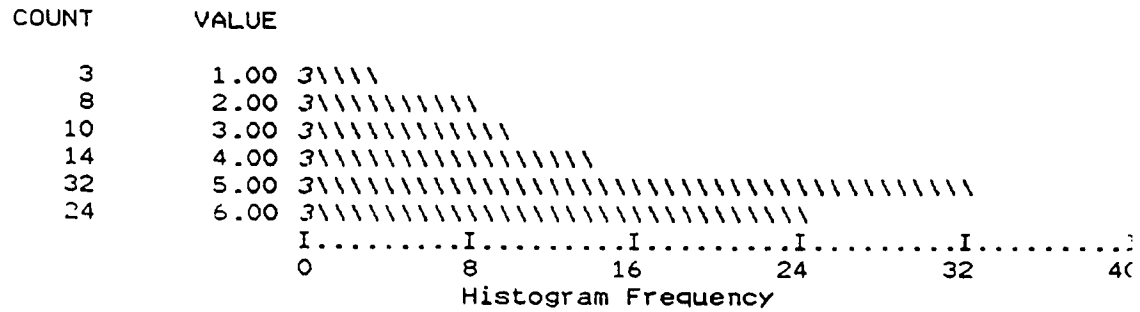


Mean 4.205 Median 4.000 Std Dev 1.513

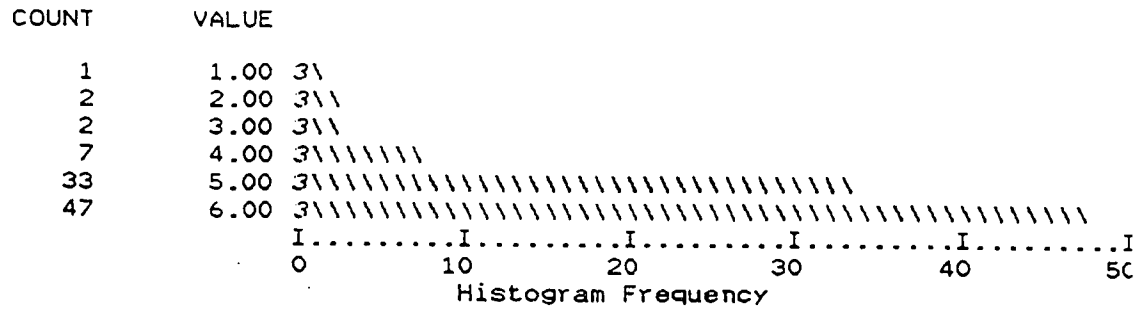
Valid Cases 78 Missing Cases 1

Group #2 (Self-Selected Sample)

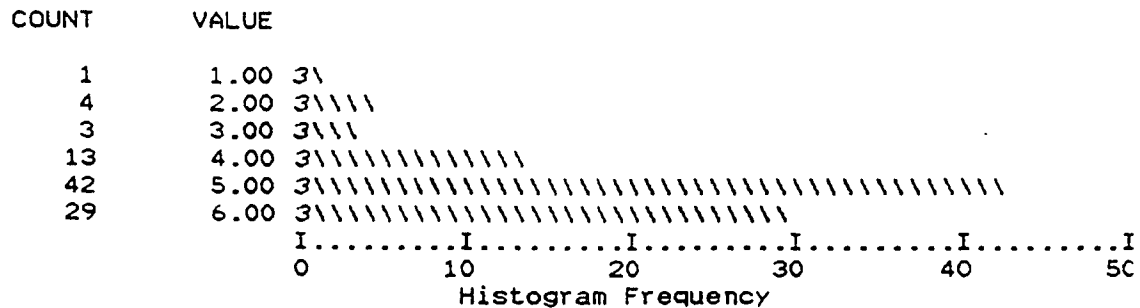
Q1



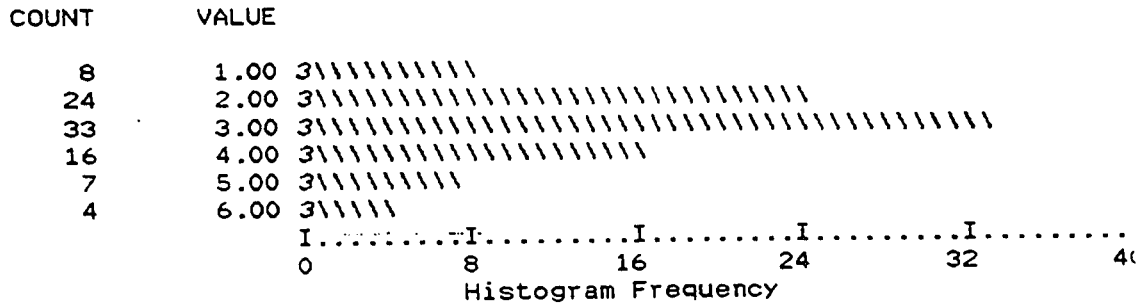
Q2



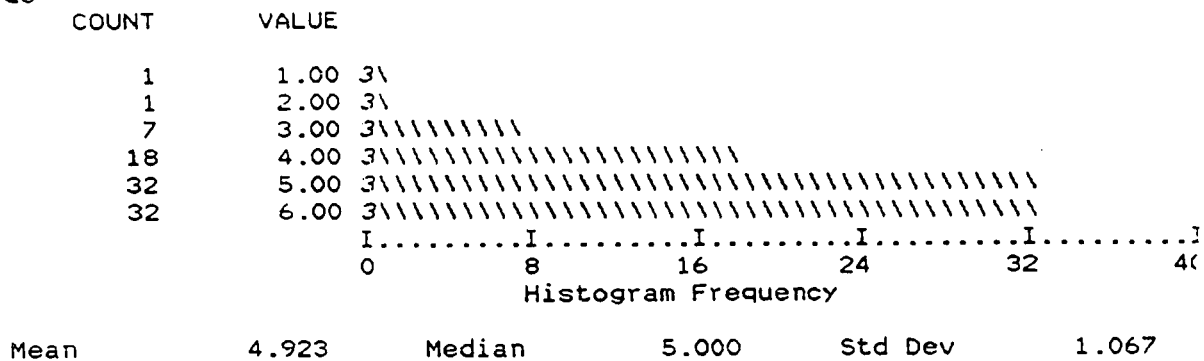
Q3



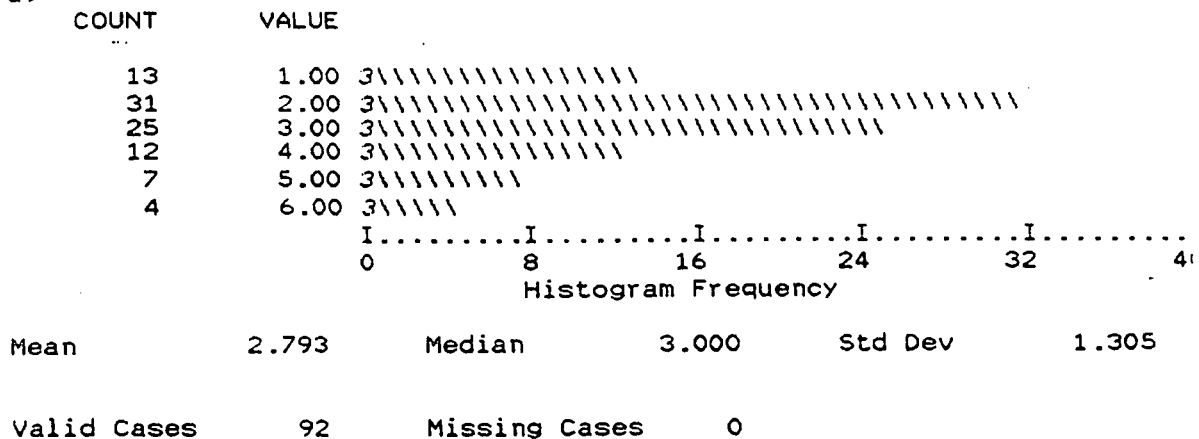
Q7



Q8



Q9



Valid Cases	91	Missing Cases	1
-------------	----	---------------	---

Valid Cases	91	Missing Cases	1
-------------	----	---------------	---

Valid Cases	90	Missing Cases	2
-------------	----	---------------	---

Q13

[illegible]

Mean	5.413	Median	6.000	Std Dev	1.131
------	-------	--------	-------	---------	-------

Valid Cases	92	Missing Cases	0
-------------	----	---------------	---

Q14

COUNT	VALUE
22	1.00
0	1.50
28	2.00
1	2.50
18	3.00
0	3.50
10	4.00
0	4.50
8	5.00
0	5.50
4	6.00

0 6 12 18 24 30

Histogram Frequency

Mean	2.621	Median	2.000	Std Dev	1.419
------	-------	--------	-------	---------	-------

Valid Cases	91	Missing Cases	1
-------------	----	---------------	---

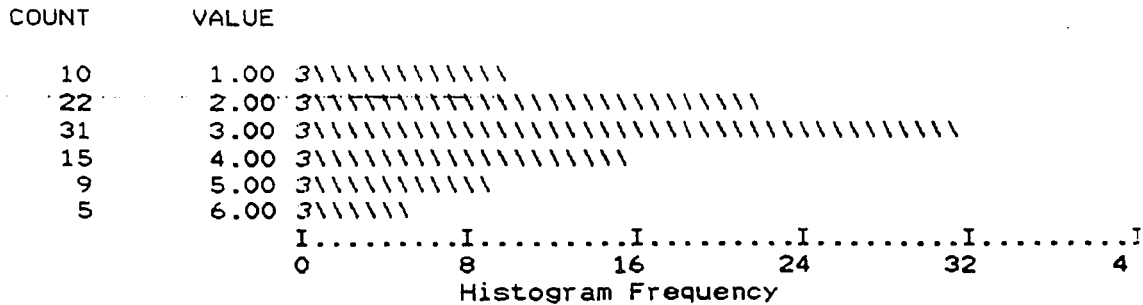
Q15

[illegible]

Mean	1.804	Median	1.000	Std Dev	1.141
------	-------	--------	-------	---------	-------

Valid Cases	92	Missing Cases	0
-------------	----	---------------	---

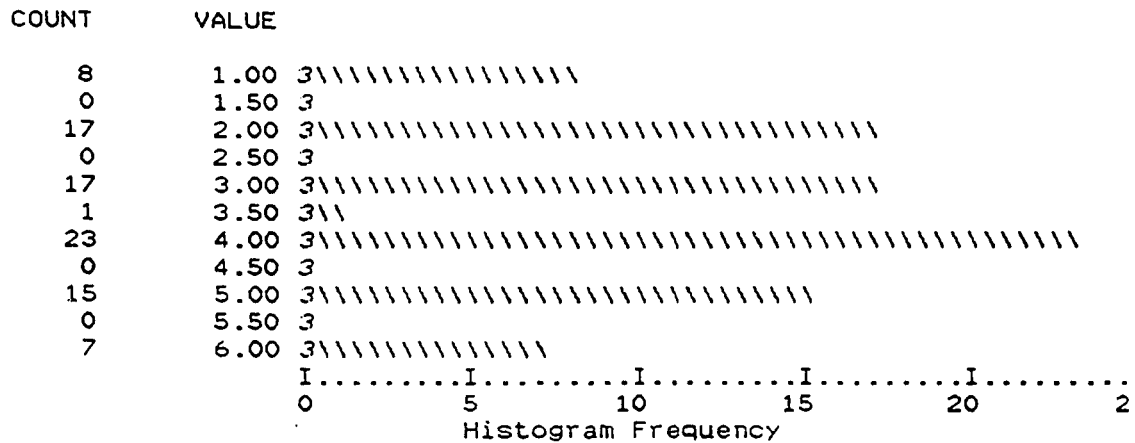
Q16



Mean 3.065 Median 3.000 Std Dev 1.316

Valid Cases 92 Missing Cases 0

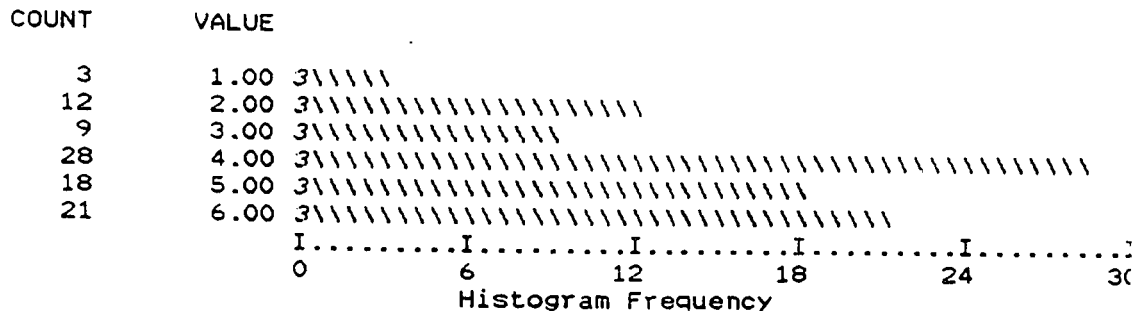
Q17



Mean 3.472 Median 4.000 Std Dev 1.421

Valid Cases 88 Missing Cases 4

Q18



Mean 4.198 Median 4.000 Std Dev 1.424

Valid Cases 91 Missing Cases 1

Q19

COUNT	VALUE
36	1.00 3\////////////////////////////////////
32	2.00 3\////////////////////////////////////
13	3.00 3\////////////////////////////////
7	4.00 3\////////
2	5.00 3\
2	6.00 3\
I.....I.....I.....I.....I.....I	
0 8 16 24 32 40	
Histogram Frequency	

Mean 2.054 Median 2.000 Std Dev 1.180

Valid Cases 92 Missing Cases 0

Q20

COUNT	VALUE
25	1.00 3\////////////////////////////////////
19	2.00 3\////////////////////////////////////
20	3.00 3\////////////////////////////////////
9	4.00 3\////////
8	5.00 3\////////
8	6.00 3\////////
I.....I.....I.....I.....I.....I	
0 5 10 15 20 25	
Histogram Frequency	

Mean 2.775 Median 3.000 Std Dev 1.608

Valid Cases 89 Missing Cases 3

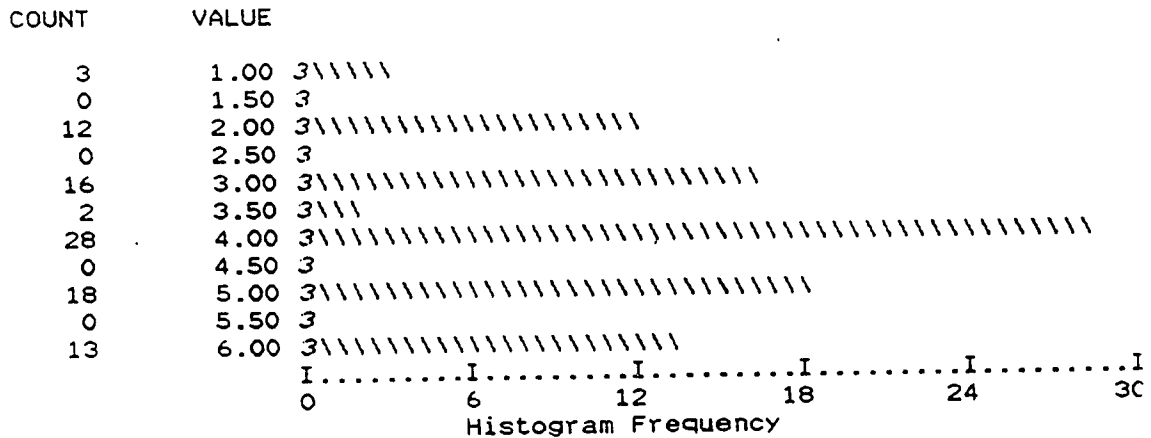
Q21

COUNT	VALUE
2	1.00 3\
0	1.50 3
4	2.00 3\
0	2.50 3
10	3.00 3\////////
1	3.50 3\
17	4.00 3\////////////////////////////////////
0	4.50 3
33	5.00 3\////////////////////////////////////
0	5.50 3
22	6.00 3\////////////////////////////////////
I.....I.....I.....I.....I.....I	
0 8 16 24 32 40	
Histogram Frequency	

Mean 4.590 Median 5.000 Std Dev 1.235

Valid Cases 89 Missing Cases 3

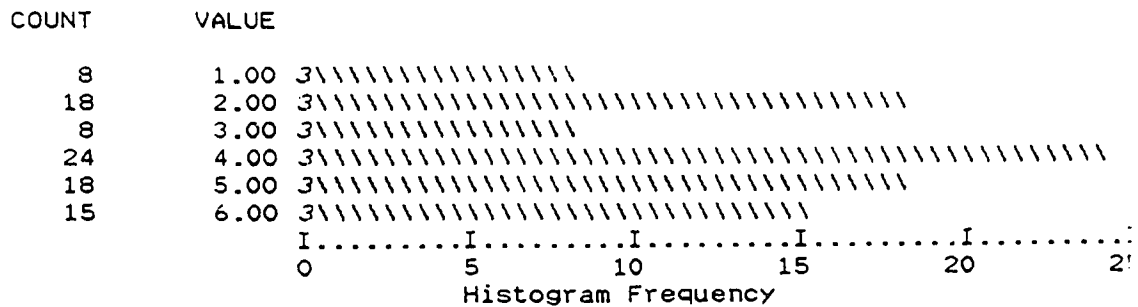
Q22



Mean 3.935 Median 4.000 Std Dev 1.331

Valid Cases 92 Missing Cases 0

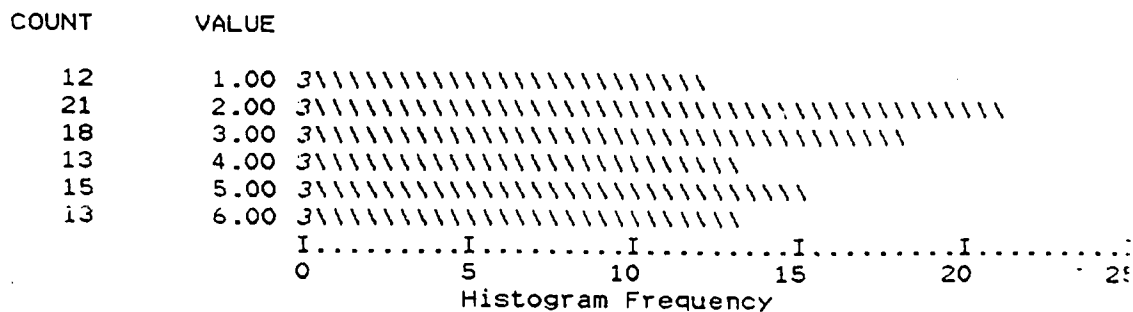
Q23



Mean 3.780 Median 4.000 Std Dev 1.583

Valid Cases 91 Missing Cases 1

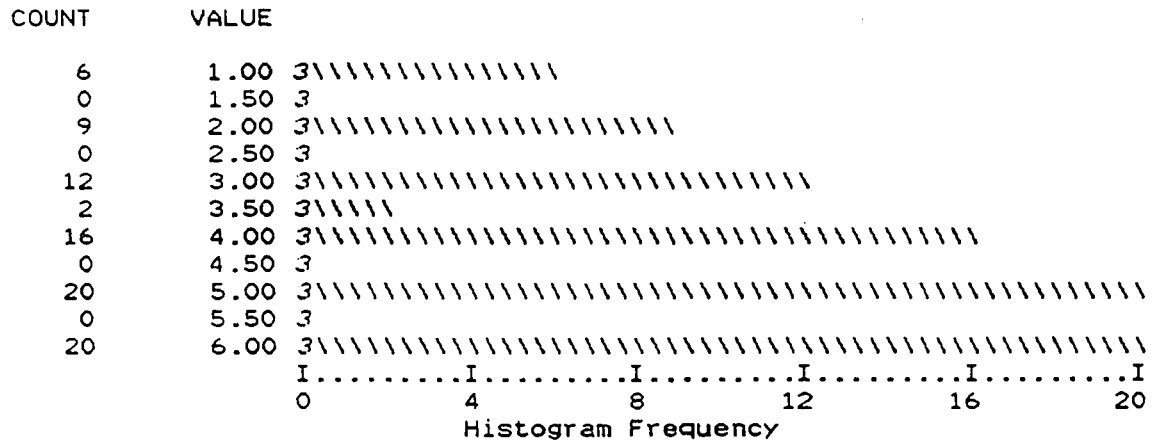
Q24



Mean 3.402 Median 3.000 Std Dev 1.638

Valid Cases 92 Missing Cases 0

Q25



Mean	4.129	Median	4.000	Std Dev	1.547
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Valid Cases	85	Missing Cases	7
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